The Iron Age

A Review of the Hardware and Metal Trades.

Published every Thursday Morning by DAVID WILLIAMS, No. 10 Warren Street, New York.

Vol. XIV: No. 13. *New York, Thursday, September 24, 1874.* *Four Dollars a Year. Single Copies, Ten Cents.*

James Baird, of Gartsherrie.

We present herewith a striking portrait of an iron master well known in this country, James Baird, of Gartsherrie, Scotland, who has done more than any other one man, perhaps, to build up the iron industry of his native land. Mr. Baird was born in 1802. His father was a farmer, but the sons, of whom there were eight, established the Gartsherrie Iron Works, with the exception of one who preferred farming.

By industry and economy, exercised almost to the verge of parsimony, the Messrs. Baird were enabled to make some little money out of their little colliery, albeit at that time coal owning was not nearly such a profitable occupation as it is in our own day. Other pits were afterward opened out in Maryston and Gartsherrie, but no works of any consequence had yet been started in that country—now the Black Country of Scotland—for the manufacture of iron. Indeed, the iron trade appeared to concentrate rather on and toward the east coast, where the Carron Works were carried on. As for Coatbridge, which is now environed with a crescent of blast furnaces, it was, to all intents and purposes, a purely pastoral locality.

The Gartsherrie Iron Works were commenced in the year 1829, and the first furnace was put in blast in May, 1830, or simultaneously with the invention of the hot blast.

From time to time the Gartsherrie Work, were extended until they reached their present exceptional proportions. They are now, says the *Practical Magazine*, with perhaps the solitary exception of Dowlais, the largest works of their kind in the world. They comprise sixteen blast furnaces, placed in two parallel rows. The two rows of furnaces are placed face to face, with their pig beds bordering the canal, and the lines of rails for the supply of raw materials placed at a higher level behind each row. A railway bridge connects the two lines of rails crossing the canal and the lower level of the works. The blast is heated to about 800° in hot blast ovens of the pistol pipe form. This is an invention of Mr. James Baird. It was adopted first at these works thirty-five years ago, and led to a higher temperature of blast than had up to that time been reached in the Scotch furnaces. Since then the pistol pipe hot blast oven has come into general use throughout the rest of Scotland. The stoves are fired with slack. They are placed behind the furnaces at the level of the railways supplying the coal. Originally Mr. Baird placed the hot blast stove on the top of his blast furnace, and tried to utilize the flames escaping from the latter for heating the blast; but this mode did not prove a real success in Scotland until Mr. Ferrie's furnace was devised.

The ore used at Gartsherrie is pure black band, which is delivered from the mines in a calcined state. A very large stock of iron ore, varying from 80,000 to 120,000 tons, is always kept in stock at Gartsherrie. Beside the native black band there is generally a considerable quantity of hematite used, and the firm work hematite mines of their own near Whitehaven. The black band is calcined in open heaps of about 2000 tons, covered over with small material, so as to exclude an excessive supply of air. Before being charged into the blast furnace, the calcined black band is carefully sorted, and all foreign and impure matter is extracted by hand.

It is probably due to the care bestowed upon the purification of the ingredients used in the blast furnace that the Gartsherrie brand is so much esteemed. It is more like the assaying of precious metals than the rough-and-ready mode of treating the materials used in the furnaces of Cleveland and other districts. When thus carefully picked and purified, the Gartsherrie ironstone contains a very large percentage of metallic iron; and it only requires 32 cwt. of ore to the ton of iron, or even less.

The weekly production of the Gartsherrie furnaces is about 160 tons each; they are tapped every twelve hours, and produce each about twelve tons of iron at each cast. The production of the works for 1872 was over 120,000 tons, about 80 per cent of this being "No. 1 Gartsherrie," which is the highest quality of foundry iron made.

Beside the establishment at Gartsherrie, the Messrs. Baird acquired the Lugar, Egliston, Portland and Blair Iron Works, all in Ayrshire, and in 1856 they acquired the Muirkirk Iron Works, also in Ayrshire, which, after the Clyde and Carron, are the oldest iron works in Scotland. In 1864 the firm acquired the Portland Iron Works, with five blast furnaces, to which one has since been added. In 1852 the Blair Iron Works came into the market. These works were started by the Ayrshire Iron Company, which became bankrupt through the mismanagement of its affairs. The works of the company were increased at a rate out of all proportion to the capital. Iron was bought on credit and sold for cash at a ruinous sacrifice, and when insolvency followed it was found that there were $1,250,000 of liabilities without any assets except the works at Dalry. These works, which originally cost $450,000 or $500,000, were ultimately sold to the Messrs. Baird for $100,000, or $350,000 less than it cost to build them. At the present time, therefore, the Gartsherrie firm own forty-two blast furnaces, capable of producing, when in full going order, from 1200 to 1500 tons of iron per day. At the present time the output of pig does not exceed 800 tons daily. Altogether, the firm employ upward of 9000 men and boys. And here it may be remarked that the Gartsherrie iron is more valuable than any other brand in Scotland, that of Coltness alone excepted. As a well-known engineer has put it, "a ton of pig iron marked Gartsherrie will command a price in the market which is above the average of the general quotations, but which is also entirely unaffected by the smaller fluctuations in the prices of pigs, the general variations between supply and demand having no influence upon that select brand. The same pig iron, taken to any distant port, will find itself in a similar position by virtue of its brand; and the act of effacing this brand, although it could not possibly alter the intrinsic value of the material, would reduce its market price by 10 or 12 per cent."

JAMES BAIRD, OF GARTSHERRIE, SCOTLAND.

From the first Mr. James Baird has been the most active, practical and plodding member of this great firm, and he is now the only one of his name that is associated with its management. With a constructive and inventive genius that was eminently sound and correct, if not very brilliant, he devised many improvements in blast furnace practice. We have already alluded to the assistance he rendered in the perfecting of Neilson's invention of hot blast. But that was only one of his many achievements. It was he who led the way in Scotland to the adoption of the modern shape of the blast furnace, which is very much less in bulk and cost than those used in the early history of the trade, when square bases and other cumbersome and unnecessary features, now obsolete, or nearly so, were in vogue. It has been said that Mr. Baird excelled in suggesting and applying different modes of saving labor in every department; and so skilled was he in all the various processes of manufacture, that the workmen all regarded him as a master of his handicraft.

An extraordinary account has appeared in a French agricultural journal, to the effect that straw forms admirable lightning conductors. It had been observed that straw had the property of discharging Leyden jars without spark or explosion, and some one in the neighborhood of Tarbes had the idea of constructing straw lightning conductors, which were formed by fastening a wisp or rope of straw to a deal stick by means of brass wire, and capping the conductor with a copper point. It is asserted that the experiment has been tried on a large scale around Tarbes, eighteen communes having been provided with such straw conductors, only one being erected for every sixty arpents, or 750 acres, and that the whole neighborhood has thus been preserved from the effects, not only of lightning, but of hail also. The statement comes from a respectable source.

The Impending Peril.

When France was freed from the Empire, her first act was to terminate the commercial treaty with Great Britain. When this country finally conquered the slave power, it promptly terminated the commercial treaty with the British Provinces. Such bonds as the Anglo-French and reciprocity treaties are essentially odious to a free people. The Anglo-French treaty, said M. Poyer Quertier, Minister of Finance under M. Thiers, "was negotiated without regard to the sentiment of the country. The French minister shut himself up with three English manufacturers, and fixed the basis of the treaty in the absence of the French manufacturers." M. Thiers, in a speech against the commercial treaty with England, denounced it for its impolicy and injustice, and as an unwarranted assumption of power by the Imperial government. He said: "It was a strange pretension—that of thinking that the government could, of itself alone, decide upon the commercial system of the country. I can understand that the government—when it is composed of the most enlightened men of the country—might believe that it could be a better diplomat, a better warrior than the mass of the nation; but a better merchant, a better manufacturer, a better agriculturist, when the nation is composed of merchants, manufacturers and agriculturists, is an unsustainable pretense." Reprehending the injurious free trade tendency of the treaty, he said: "I can understand that we might hesitate before undertaking to develop certain industries in a country; but what I cannot understand is, that, when they are already developed, we should leave them to perish."

When Bismark proposed to enter into a commercial treaty with conquered and prostrate France, Thiers, true to his principles, refused to negotiate, declaring that his country must restore her prosperity by protecting her industries.

We would ask, where were the manufacturers, the merchants, the agriculturists of the United States, when our State Department negotiated the pending reciprocity treaty with the British Provinces? Were they consulted? Have they a right to a voice in the matter? Using the language of M. Quertier, we may say of it that "it was negotiated without regard to the sentiment of the country. The American minister shut himself up with three representatives of English manufacturers, and fixed the basis of the treaty in the absence of the American manufacturers." This act, as compared with that of the French government, is incomparably more arbitrary and presumptuous. That it must be confirmed by the Senate, before it is valid, takes away something of this odium, but there was a most unwarrantable effort to hasten the action of that body, to prevent the voice of the people, the merchants, agriculturists, and manufacturers of the country from being heard. We hold, further, that the settlement by treaty of all the commercial relations between this country and a foreign nation is a perversion of the treaty making power, and in conflict with the Constitution of the United States, which expressly confers upon Congress—not upon the President and Senate—"the regulation of commerce with foreign nations."

The pending treaty will establish free trade with a dependency of the British Empire for a period of twenty-four years. So far as the British Provinces are concerned, it abolishes the tariff laws of the United States. However injurious it may prove to be in practice to the industries and revenues of the country, there will be no way of abrogating it except by war. Whilst it exists, Congress will be deprived of its constitutional power of regulating commerce, and the people, bound hand and foot, and sold for a term of years to a foreign power, will be without remedy.

Consider what may happen in the quarter of a century during which it is proposed to admit all products of the Dominion into this country, free of duty. May not Canada be converted into a workshop in which the crude products of Great Britain, obtained free of duty, will be converted into wares to be sold, duty free, in the United States? Bearing none of the burdens of our debt, paying no taxes for the support of our government, and using material which he may import without contributing to our revenue, the Canadian manufacturer will enjoy such advantages as will render competition with him impossible. He will have a monopoly more lucrative by far than those which arbitrary monarchs have conferred upon undeserving favorites.

It is a mistake to suppose that Canada has now no manufactures. The steel consumers, who appeared before the Committee of Ways and Means to ask a reduction of duties, gave some evidence upon this point. J. N. Hubbard, of the firm of Hubbard, Blake & Co., axe, file and scythe manufacturers, of West Waterville, Maine, said: "We have no competition except from factories in Montreal, Ottawa, and St. Catherine, in Canada, who compete with us in the markets of Canada and Nova Scotia." George Barnes, a manufacturer of knives and sickles for mowers and reapers, of Syracuse, New York, said: "A considerable portion of our trade is obtained in Canada, and there we are met by the competition of parties who removed from Buffalo, in the State of New York, to Canada, in order to escape the heavy duties (on foreign steel) which we have to pay. The result is that if we do any trade in Canada, we have to do it at a very slight profit or at cost. I may mention that, rather than abandon our Canada trade entirely, our company now has it under consideration to build an establishment in Canada."

The movement to Canada, which these statements show to have already begun, will receive a powerful impetus from the treaty surrendering our markets to Canadian manufacturers. It would no longer have in view the inconsiderable trade of Canada, but the infinitely greater prize of the markets of the United States. This consideration is in itself sufficient to cause the utmost alarm, and there are other reasons for apprehending from the treaty the most largely injurious consequences. How will it be possible to identify the infinite number of articles covered by the treaty, as the product or manufacture of Canada? We can see that, with the establishment of branch English manufactories in Canada, the most stupendous frauds could be perpetrated without the possibility of detection; and that country would be made, in effect, a free port for the trade of Great Britain with the United States.

Commercial treaties are the means by which such strong and cunning nations as England draw tribute from weaker peoples. No free country will enter into them without making them terminable at will. They can be imposed upon other terms, only by fraud or force. We regard the indirection and false pretense of the proposed treaty as its most odious features. If we are to have free trade with England, we would prefer to have it pure and simple, open and direct, instead of going about to reach it through striking by-ways, tainted with perjury, and reeking with corruption.

If the treaty-making power justifies such negotiations as our State department has conducted, and the Senate has been asked to approve, then a new peril is disclosed to the people of the United States. They don't possess the right of self-government. Their control of the finances, trade and industry of the country may be taken away from them for years, or forever. If the President and Senate may establish free trade with Canada for twenty-one years, and three years longer, they may establish free trade with England for a hundred years. The right of the people to freely change their laws would thus be wholly lost, the nation would be subjected to the will of a foreign power, from which it could not escape except by such a breach of faith as is recognized as a cause of war. When the Constitution committed to Congress the regulation of commerce with foreign countries, it gave it to the law making power, which is always sovereign, and cannot bind itself irrevocably or abdicate its functions. A commercial treaty, such as is proposed with Canada, is as directly contrary to the letter and spirit of the Constitution as it is to the character of free government, and the interests of a free people.—*Industrial Bulletin.*

A torpedo trial, which has just been made in Stokes Bay, near Portsmouth, has just ended, as it was hoped it would, in the victory of the ship. An attack on the double bottom of the iron paddle steamer Oberon took place in the presence of a large number of spectators, who made a ring of a respectful radius round the two combatants. The torpedo was sunk at a distance of eighty feet horizontally from the Oberon. On the mine being fired by the engineer officer ashore, an immense fountain-like body of water and black mud rose into the air to a hight estimated variously at from 150 to 200 feet, which in falling flooded the Oberon's deck. It exceeded threefold the column of water and mud thrown up at the experiment, but here there was a greater fresh-water saturation of the 500 pounds of gun cotton forming the charge of the mine, and the latter had also a greater head of water over it than the previous mine had. The Oberon still floated, however, without any visible injury to the exterior of the hull, and an examination of the state of things on board led to the discovery of no injury whatever to the sides of the vessel, to the condenser or its tubes.

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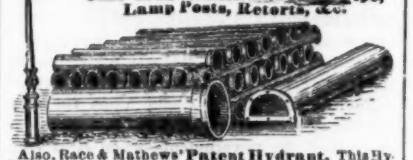

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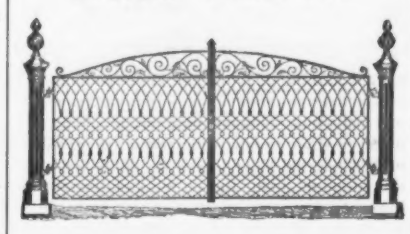

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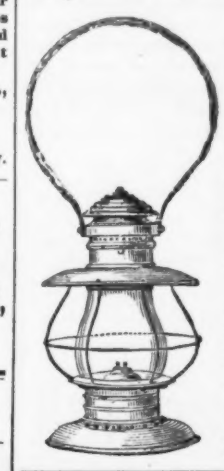

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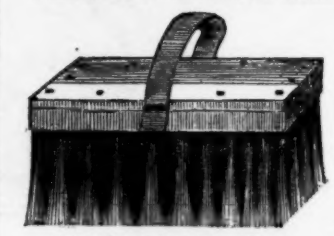

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The Practical Working of the Crampton Puddling Furnace.

Mr. T. R. Crampton has presented to the British Iron and Steel Institute an account of the practical workings of his revolving puddling furnace, which will be read with interest in connection with the illustrated description of this furnace published in our issue of September 10. We condense as follows:

It has been mentioned that the furnace may be heated and cooled as rapidly as desired, without in any way affecting the stability of the lining or the true running of the furnace itself. This is due to the water casing preventing all excessive or unequal expansion or contraction. It is my impression that unless puddling machines are made absolutely true in the first instance, and are able to retain that truth through their practical working, the wear and tear and inconvenience—to say nothing of the cost of constant repairs from the buckling and distortion of the plates, and the shaking of the entire fabric, and the extra power required—will be so great as to render it doubtful of their becoming a commercial success. As to the gain in yield of puddled bloom on the weight of pig iron charged, the time employed in working the heats, and quantity of coal used per ton of iron made, I will give the results of work in the presence of Mr. Kirk, of Workinton, whose scientific and practical knowledge of the subject are well known. The figures are his own. The pig iron charged, 353 cwt., produced 405 cwt. 0 qr. 25 lbs. of puddled bar, showing an increase of 14·544 per cent. To produce this 405 cwt. 0 qr. 25 lbs. the weight of coal was 284 cwt. 0 qr. 8 lbs., or 14·02 cwt. per ton of puddled bar, including melting the cold pig. This quantity of iron was puddled, in 53 heats, in 80 hours, 38 minutes, including charging, fettling, &c., or 1 hour 31 minutes for each heat. The average charge was 6 cwt. 2 qr. 19⅛ lbs., the average yield 7 cwt. 2 qr. 15¾ lbs., or the before mentioned 14·544 per cent. gain. If larger charges had been manipulated, the 14·02 cwt. of coal per ton would have been reduced to 10 cwt., or even less. This has been proved in many instances. The quantity of fettling was about 15 cwt. per ton in these experiments. This may, of course, be reduced, but it may be advisable not to do so, since there is a gain, in a commercial point of view, depending on the value of the fettling. The fettling was mill tap cinder, or puddler's tap, melted with scrap ball. The total fettling cost £9. 6/, but the 42 cwt. of puddle bloom produced from it is worth, at £7 per ton, £14. 14/, showing a net profit of £5. 8/ on the 124 cwt. of fettling, or about 11/5 per ton of puddle bar produce. These figures are deduced from the last 27 charges of Mr. Kirk's experiments, it being the only exact data I have to offer, the fettling not having been usually weighed. The general conclusion arrived at by Mr. Kirk was, that the furnace should practically make 5 tons of puddled bloom per shift of 12 hours, with a consumption of 10 cwt. of coal per ton, including melting the cold pig in the furnace.

The advantage of previously melting the pig has been shown by Mr. Jones, who described, at the last meeting of this Institute, that he had increased the quantity of iron puddled per day (if my memory serve me correctly) 50 per cent., and, in consequence, reduced the fuel from 25 cwt. to 16 cwt., or nearly half. With regard to the squeezer and the hammer, I would remark that the squeezer, so far as its operation is known at present, does not express the cinder so effectually as the hammer, as may be seen by the samples of puddled bar exhibited; the squeezer bar being full of dirt, whereas that from the hammer is perfectly clean. If it be desired to sell cinder for iron the squeezer effects the object, but if good clean iron be required, the hammer is the more effective implement. But it is my conviction that, in order to obtain the best results in cleaning iron from cinder, the ball must be as hot as possible, and the cinder all expressed at the first heat under the hammer, avoiding to turn the ball up, which by doing tends to close the channels from which the cinder is running. When the cinder has ceased to flow the ball should be turned up and formed as quickly as possible. It is difficult to carry this out always, but the principle should be kept in view.

Many have thought it was impossible to manipulate 10 cwt. to 12 cwt. balls under the hammer, but at Woolwich a different opinion was entertained, and the puddle balls which have been made have been successfully treated without any great trouble or any special appliances being adopted. At the same heat, the bloom is cut in pieces to the required size by placing a knife upon it and driving it through with the hammer. No difficulty need be apprehended with regard to this part of the process. The perfection to which the hammer expresses the cinder may be seen by examining the broken and polished samples, all which were made from pigs containing 0·87 per cent. to 1·3 per cent. of phosphorus, and rolled direct from reheated puddled blooms without piling. I would further call your attention to the fact that steel can be produced from all those samples, as proved by the steel rails and bars exhibited which were made from portions of the same material. It is my impression if the mode of manufacture direct from the homogeneous mass is to be carried out, the cinder must all be expelled from the puddled ball itself, and I think that no subsequent manipulation will be so effective. It is difficult by reheating to ensure the same temperature in the center of the ball, and neither will hammering or rolling express the cinder locked up in the bloom, but simply spread it over a larger surface. I have no doubt, when it becomes necessary to do so, that balls of a ton weight may be treated under the hammer, with the aid of special appliances. The mechanical detailed arrangements for supplying water to the casing, as well as the mode of conveying and injecting the fuel and air, and the means of attaining high and regular temperatures, were fully described in a previous paper, and no further improvements have been made on these points, as they are perfect in their operation. But a wearing ring of simple construction may be noticed. It consists of a square bar of iron or steel, or other metal, formed into a ring, and inserted between two angle irons, which form parts of the furnace, and is riveted or bolted up between them; the same is applied to the flue. The inner surface of the ring is exposed to the water in the casing, the outer wearing surfaces project about ⅝ inch. These rings are replaced when required. It may be observed that as these rings are always cold and quite true on their faces, but little pressure is required to keep them close together, and practically no liquid cinder passes them.

With regard to the effect produced in puddling, in a revolving furnace, with pulverized coal, in eliminating the foreign matters from the iron, I will call attention to the products as exemplified by the samples. It must be evident to all practical men that such products have not been produced from pig containing considerable quantities of phosphorus and sulphur by any ordinary means. No bar 2¾ inches square, which contains an appreciable quantity of phosphorus, could be bent cold and hammered close as those shown; neither could the plates, which have been flanged and manipulated hot, have been so treated did they contain much sulphur (sample of plate formed into a tube and flanged, was made of Cleveland pig), and the plain flanged plates from pig containing ⅜ per cent. of phosphorus. Upon analysis these samples were found to contain mere traces, and in some cases none of these elements could be detected. Specimens of tool steel, made from Cleveland pig, are on the table. This is, I believe, the first time that steel has been made practically from inferior qualities of iron, and what the effect may be eventually on the iron and steel industries, I am not competent to predict; but if inferior ores can furnish finished material, such as that shown, it will certainly reduce the necessity of going abroad for superior ore. Phosphorus and sulphur have been the great difficulties that iron and steel makers have had to contend with; and the number of means proposed, and the immense sums of money that have been expended in the endeavor to eliminate these elements, are almost inconceivable. By referring to the analyses read at the May meeting, 1872, by Mr. Snelus, in his report to the commissioners on Mr. Danks' system, it will be seen that the phosphorus was never eliminated to less than 0·2 per cent. from any pig which was used containing originally 0·6 per cent. and upward, and the sulphur was reduced to 0·044 per cent., the pig containing 0·736 per cent. The analyses of Mr. Ainsworth and Mr. Pattinson, in relation to Mr. Spencer's furnace, show that phosphorus was eliminated to as low a percentage as 0·1 per cent., and 0·164 per cent. from pig containing 2·19 per cent., and the sulphur was reduced to 0·05 per cent., the pig containing 0·17 per cent. It was suggested by one of the members that the better results of Mr. Spencer's were due to the purer fettling employed, but the reason given by Mr. Snelus is more in accordance with my views—namely, that high temperature was a most essential point, to which, and the means of maintaining it, I attribute my success. Various bars which were produced from my furnace in November, 1873, from Cleveland pig, have been found, on analysis by Messrs. Vickers, of Sheffield, to contain no phosphorus, and only a trace of sulphur. Some of this iron has been made into steel ingots, samples of which are exhibited made into tools. In conclusion, I respectfully submit to the meeting that, in this and my former paper, of May, 1873, I have to a certain extent shown that the following improvements can be practically carried out, namely, the utilization of slack or small coal without the production of smoke; the automatic feeding of coal and air; the production of heat of high intensity, combined with regularity and economy; the construction of revolving furnaces without brickwork, composed of a single chamber in which the gas is produced, consumed, and the material treated; the reduction of the wear and tear of the furnace by a water casing; an easy mode of fettling; and, lastly, the practicability to eliminate, in the puddling furnace, phosphorus and sulphur from inferior iron to such an extent as to enable it to be converted into the best steel.

Wages at Blast Furnaces.

To meet inquiries which are frequently received at this office, we have prepared with care the following table of wages paid for furnace work in various iron producing sections of the country. Our sources of information are reliable, and the figures given are correct. It will be observed that the highest wages are paid at Pittsburgh:

Classes of Workmen.	Coke.		Anthracite.			
	Pittsburgh.*	Near Pittsburgh, in Penna.*	Along the Susquehanna, in Pennsylvania.*	Schuylkill Valley, Pa. 30 miles frm Phila.*	Schuylkill Valley, Pa. 16 miles frm Phila.*	Hudson Valley, New York.¶
	$	$	$	$	$	$
Keepers	2 75	1 99 7-10	.....	2 18	2 00	2 00
Helpers	2 20	1 56 9-10	.....	1 65	1 70	1 62½
Top fillers	2 00	1 56 9-10	1 40	1 60	1 80	1 62½
Cindermen	2 00	.....	.....	.....	1 70	1 62½
Ore fillers	1 90	1 56 9-10	1 40	1 57	1 70	1 62½
Ore helpers	1 90	1 56 9-10	.....	.....	.....	1 62½
Coke fillers	1 90	1 56 9-10	.....	.....	.....	.....
Coke helpers	1 90	1 56 9-10	.....	.....	.....	.....
Hot blast men	2 00	.....	.....	.....	.....	1 62½
Laborers	1 58	1 25 5-10	1 00	1 25	.....	1 50
"	1 58	1 14 1-10	1 15	1 50	1 43	.....
Engineers	3 70	2 47 2-10	.....	2 63	2 50	2 34
Assistant Engineers	2 70	2 28 4-10	.....	.....	1 60	1 62½
Firemen	2 00	1 45 5-10	.....	.....	.....	.....
"	1 58	1 45 5-10	.....	.....	.....	.....
Shafters	.....	1 61 6-10	.....	.....	.....	.....
Carpenters	2 50	1 71 1-10	.....	.....	.....	.....
"	2 25	1 71 1-10	.....	.....	.....	.....
Stock carters	1 90	.....	.....	1 30	.....	1 50
"	1 90	.....	.....	1 50	.....	.....
Cinder carters	1 90	.....	.....	1 60	.....	1 62½
Iron carriers	.....	.....	.....	1 54	.....	.....
Watermen (boiler tenders)	.....	.....	.....	1 75	.....	.....
Machinists	2 00	.....	.....	.....	3 00	.....
Ir'n men (w'ighers)	2 00	.....	.....	.....	2 50	1 75
Night foreman	.....	.....	.....	.....	.....	2 07½
Blacksmiths	2 80	.....	.....	.....	.....	.....
"	2 12½	.....	.....	.....	.....	.....
Foreman†	.....	.....	.....	.....	.....	140 00

* Wages per day. † Wages per month.

¶ Wages per day, and 14 cents per ton for all make over 10 tons.—*Bulletin of the Iron and Steel Association.*

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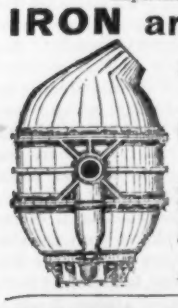
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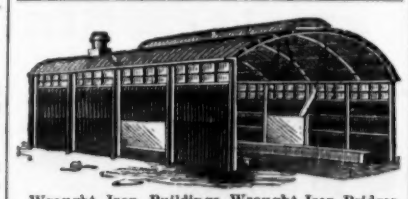
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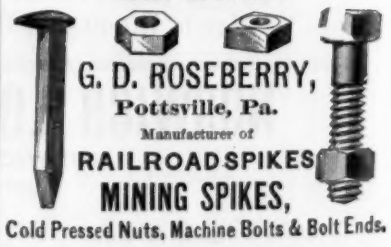
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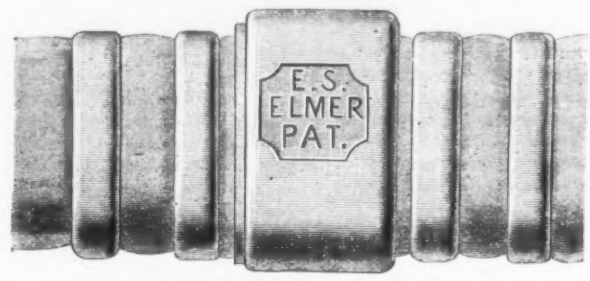
Elmer's Patent Hose Coupling.

We illustrate herewith an improved hose coupling invented by Mr. E. S. Elmer, of Hudson, N. Y. Its claims to superiority are based upon the following advantages: It can be coupled instantly and securely by the hands without the use of a wrench or any other instrument. It is the only coupling which separates to lock, the advantage of which is that the strain comes directly on the lock, instead of the fastenings of the lock. Drawing the hose, carrying it up a ladder, and the internal pressure of the water, all tend to make it more secure. It turns either to the right or left in coupling or uncoupling, and can be coupled when fouled with mud. It has a swivel joint



IMPROVED HOSE COUPLING.—*Fig.* 1.

which prevents the hose from twisting in coupling; the lock being of such a character, however, that no amount of twisting of the hose can unlock it. The parts are so formed that they will not become unserviceable by jamming or other rough usage. The coupling is no larger than an ordinary screw coupling with the lugs required for the wrenches removed, and when coupled, it presents a perfectly smooth surface, so that it can be more conveniently used and closer packed on the carriage.

Fig. 1 represents the coupling united. Fig. 2 is the male butt, upon which are lugs so placed that when the parts are brought together and turned into position they are forced into the recesses in the locking lugs, B, shown in Fig. 3. The interior part, C, Fig. 3, is forced

Fig. 2.

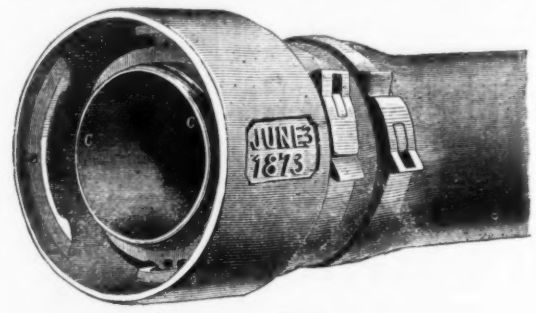


Fig. 3.

by the action of coupling against the packing ring, D, Fig. 2, so that it closely embraces, and is forced more securely there by the back pressure of the water, making it perfectly tight. The lugs of the male butt are held in the recesses of the locking lugs of the female butt by the power of a spring washer. The device is simple and the coupling convenient and durable.

A Carlist Gun Factory.

A correspondent of the *London Times*, writing from Hendaye, describes a visit to a Carlist gun factory close to the French frontier: We were met by the director of the works, Senor Parada, a young gentlemen, long resident in France, uncommonly well informed and intelligent, and combining all the graces of Parisian elegance with consummate Spanish courtesy. The factory over which this gentleman showed us was altogether his contrivance. The machinery was made in Paris under his direction, at a cheaper price, he said, than he could have procured it either in England or Belgium, and it was also conveyed by himself across the frontier by the route I had just followed, the size and weight of the machinery, I should think, making up as bulky and heavy a convoy as would be made by four batteries of artillery taken to pieces. This happened about six weeks ago, and at that time it is evident that wares of this description traveling across the line met with no hindrance on the part of the French authorities, though surely the tools wherewith cartridges are made ought to be as much contraband of war as the ready-made cartridges themselves might be. But six or seven weeks ago France had not recognized Serrano's government; she ignored the civil war, and in her neighborly neutrality she made no difference between Carlists and Republicans, and looked upon neither as belligerents. The same material would not probably be allowed to get across now. The factory employs about 150 workmen, and produces from 10,000 to 14,000 cartridges daily. It will attain much greater activity when water-power is, as it soon will be, applied to the machinery which is now worked by hand. The Carlists have, however, beside this another and a larger cartridge manufactory at Sequeitio, nearer to headquarters. A great difficulty of the Carlists is found in the different bores of their rifles, which they have received from England, France, Belgium and America, resigning themselves in their pressing need to the inconvenience, on the principle that "beggars should not be choosers." The Urdax factory supplies six different kinds of cartridges suiting the peculiarities of six different weapons. The most esteemed among them are the Remingtons, of which Don Carlos is said to have 10,000 or 12,000. The laborers employed at Urdax, as I said, are soldiers, and they are especially chosen from among those natives of the Basque and other Carlist districts who have either come over as deserters from the Republican army or absconded from districts still subjected to the Republican government to avoid the conscription. These workmen receive only soldiers' pay, and are held under strict military discipline. Their officers, like the Director, are well educated men and gentlemen. The writer goes on to say that the Carlists whom he has mixed with are cultivated and liberal men. They are not absolutionists nor fanatical Catholics. Neither is their devotion to the King altogether so unqualified as might have been expected. They complain a good deal of his prolonged inaction. The letter proceeds: Those who wish to see real, thoroughgoing, uncompromising Carlists should seek them among the French Legitimists and Ultramontanes. My impression is that at this moment almost every Frenchman is a Carlist in so far as he is an anti-Bismarckian. The refusal of the Czar to join in the recognition of Serrano's government has raised the hopes of the French to an extravagant pitch of exaltation, and they already dream of that Russian alliance by the aid of which Sedan is to be avenged. While that great combination is maturing, and they have nothing else to do, they think they can best advance their interests by devoting themselves to Don Carlos. Should he at any time ascend the throne at Madrid, nothing, they think, will be easier than to induce either this or another Pope to break the bonds of his vatican captivity, and seek a refuge against Victor Emanuel and Bismarck under Bourbon protection at Toledo or Saville. With the Pope to bless their standards, Spain and France, whether the latter be a Monarchy or a Republic, or even a Septennate, would place themselves at the head of the Ultramontane host throughout the world, and then they would hardly need the aid of Russia, as they would rely on the co-operation of the Catholic subjects of all European States, and even on that of 14,000,000 of Bismarck's own subjects, those whom the Iron Chancellor persecutes and oppresses, whose priests he fines and imprisons, whose bishops he drives from their sees. It is easy to laugh at these anticipations as altogether illusory. But the immediate effect is to throw difficulties and dangers into the path of the French authorities, who, in their conduct towards the Spanish Carlists, waver between the fear of Bismark's displeasure if they are too glaringly remiss in their guardianship of the frontier, and the dread of unpopularity among their own people if they exercise too strict a check on the Carlist movement."

Preventing Smoke.

In the address lately delivered before the British Association, by Prof. James Thomson, C. E., L. L. D., we find the following:

The atmosphere of our large towns, where people live by hundreds of thousands all the year round, is not yet guarded against needless pollution by smoke jealously, as it ought to be Many of the wealthier inhabitants take refuge in living in the country, or in the suburbs of the town, as far away as they can from the most densly built and most smoky districts; but the great masses of the people, including many of all ranks, must live near their work, and for them at least greater exertions are due than have yet been made toward maintaining and improving the salubrity and the amenities of our towns. As to the abatement or prevention of smoke from the furnaces of steam engines, the main requisites have long been very well known; but sufficient energy and determination have not yet been manifested toward securing their due application in practice. In too many cases futile plans have been tried, and on being soon abandoned, have left a strong impression against the trying of more experiments; and this may account in part for the introduction of real improvements having been so slow. Smoke occurs when fresh coal is thrown suddenly, in too large a quantity at once, on a hot fire. By extreme care a fireman may throw coal into his furnace so gradually as to make very little smoke; but mechanical arrangements for introducing constantly and uniformly the new supply of fresh coal have been devised, and several of these have been such as to reduce the smoke emitted to almost nothing. I have seen in the neighborhood of Glasgow, at a large manufacturing establishment at Thornliebank, one method which is applied to about thirty ordinary 40 horse-power boilers, in which upward of 100 tons of coal are daily burned, and from the chimneys of which not more smoke is emitted than from many a kitchen fire. This method is under the patent of Messrs. Vicars, of Liverpool, and it seems to work very well. It has been about two years in work there. It was introduced at a time when coal was exceedingly high in price, as much to effect economy in fuel as to prevent smoke; and although the first cost was somewhere about £130 per boiler, the proprietor considers himself to be already more than recouped for his outlay, as a saving of fully 12 per cent. in the fuel consumed was effected. At the same works I have also seen in operation the method of Messrs. Haworth & Hosfall, of Todmorden, which has, I am told, in certain circumstances, some advantages over the other. In this, as in the other the coal is fed in uniformly by mechanical arrangements. The mechanism is different in the two cases, but the result in the motion communicated to the coals is very much alike in both. The bed of coal, which is gradually supplied in front, is caused to travel along the bars toward the inner end of the furnace, and the combustion proceeds in a very uniform manner in conditions highly favorable to economy of fuel, and without the emission of almost any visible smoke.

These two methods I have mentioned because they appear both to work very successfully in practice, while they both bring into effect the principle of action of the fuel which has long appeared to me to be the best that can be adopted for ordinary cases of steam engine boilers.

Electro Examination of the Action of Soft Water on Lead.

The subject of the action of soft water on lead has recently much occupied the attention of the Academy of Science, at Paris. The following presents a summary of the last and most important results laid before the Academy, as extracted from the *Comptes Rendus*:

MM. Mayengon and Bergeret state that sulphureted hydrogen is not a sufficiently exact test to discover the presence of lead in solution. It has hitherto been considered as the test most to be relied on. They have found, however, that sulphide of lead formed, on adding the test, is slightly soluble in water saturated with sulphureted hydrogen, and also in many natural soft waters. If water containing a salt of lead be treated with an excess of sulphureted hydrogen, and then filtered, all the lead does not remain on the filtered paper, for the liquid that has passed through still contains some of the metal. This is readily proved by having recourse to an electric current, for the negative pole—say a platinum wire—immersed in such a solution undergoing electrotysis will speedly have a deposit of metallic lead on its surface. The presence of the lead is proved in the following manner:

The platinum wire is exposed for some seconds to the action of gaseous chlorine; the lead, if any be on its surface, is at once converted into the chloride. This is then placed on a piece of filtering paper, moistened with a very dilute solution of iodide of potassium. Immediately a trace is afforded of the yellow iodide of lead. This result may be verified in the following way: The platinum wire, from which only a portion of the lead has been removed as chloride, is to be rubbed on a piece of common white paper, and this is to be exposed to sulphureted hydrogen gas, when a brown tint will be at once seen. All the results that the experimenters obtained were thus doubly verified. By many trials they became assured, having had constantly the same results that, first, neither the artificial nor natural (*galena*) sulphide of lead were insoluable; and, second, that sulphureted hydrogen, while precipitating a large amount of the lead as sulphide, still leaves sufficient in solution to be easily determined.

During the course of their investigation they employed a variety of solutions for the purpose of obtaining conducting liquids for use in electrotysis, such as sal-ammoniac, caustic soda, and sulphuric acid (said to be pure), but they found that all these contained traces of lead, which invalidated their experiments. They eventually employed a solution of crystallizable acetic acid, which was free from that metal.

They tried repeated experiments on the action of the waters of the Loire, Rhone and Saone on lead, and in each case the electrolytic method showed that a portion of lead had been dissolved. The result proved that the metal was soluble even in such water as contained both carbonate and sulphate of lime (hitherto considered as preventing the chance of the lead being dissolved). Their experiments were repeated with the same results in water artificially charged with those salts of lime. Various waters used for domestic purposes at Paris afforded the same effects.

Their general conclusions are as follows: 1, that sulphide of lead is soluble in soft water, and also in sulphureted hydrogen; 2, that sulphureted hydrogen is not a reliable test for minute portions of lead in solution; 3, that soft river waters, more or less holding carbonate and sulphate of lime in solution, dissolve lead; as, 4, do also those liquids artificially prepared to imitate them; 5, that the water of St. Etienne, supplied to public and private establishments, etc., contains lead in solution; but, 6, that the quantity so dissolved is too small to affect the public health, as has been proved in the hospitals, schools, and other places in Paris and its suburbs, supplied with that water. They have not yet satisfied themselves, however, as to how far lead may affect or enter into, physiologically, the digestive organs of the human system—a matter which they propose to further inquire into.

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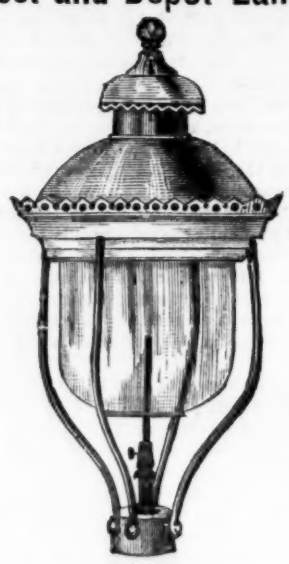

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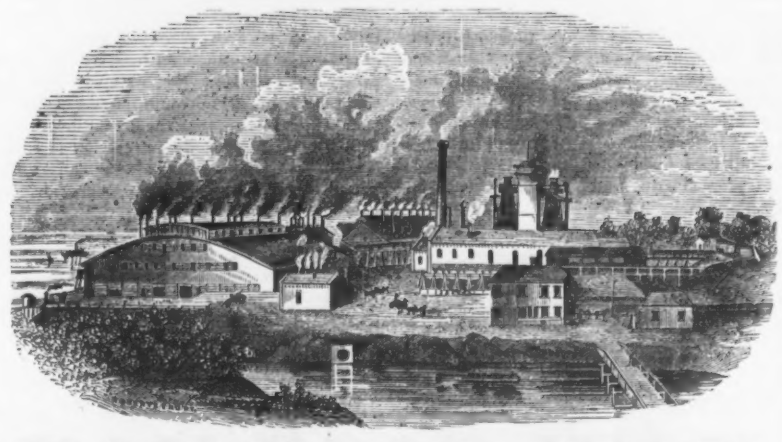

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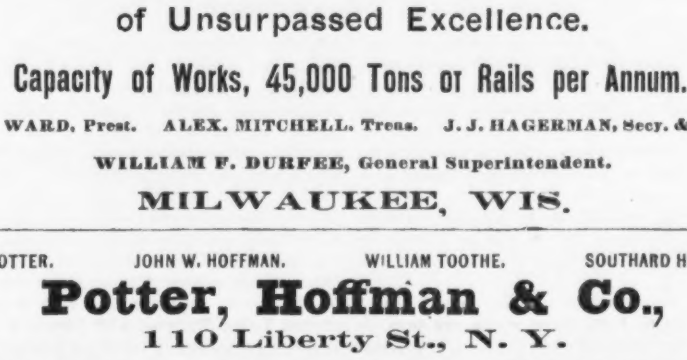

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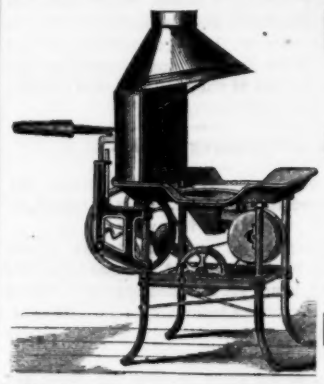

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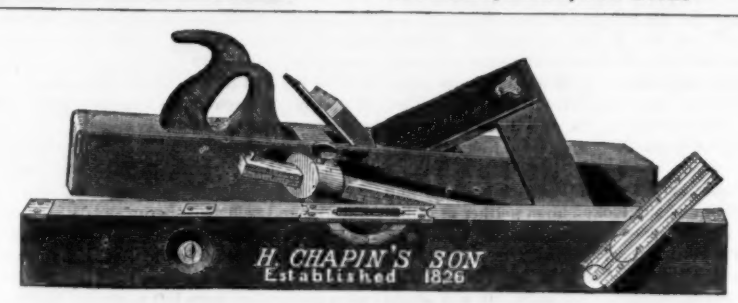

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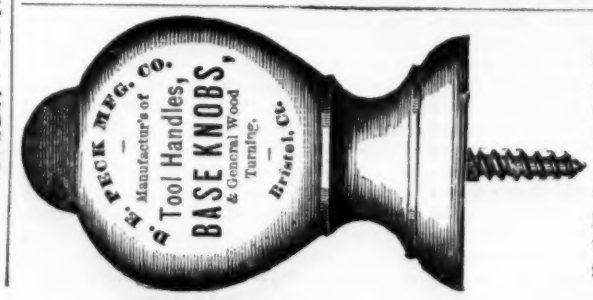

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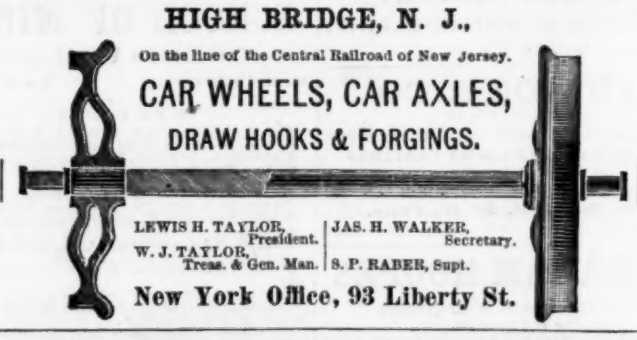

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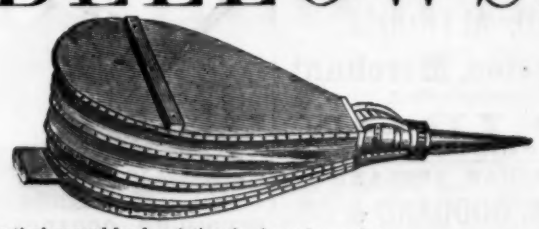

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American Rolling Mills.

The following is an abstract of the paper on American Rolling Mills, read before the British Iron and Steel Institute, by Mr. Lyman Holley, of this city:

The object of this paper was to describe the general arrangement of American steel rail mills of recent type, and some of the more important details of their machinery and practice, rather than to bring forward any remarkable novelty. The character of mill structure in the Northern States is largely affected by meteorological conditions. A series of small span roofs covering a continuous area is impracticable; heavy snows would drift into the valleys, and by alternate freezing and thawing, fill them with a dangerous weight of ice. There may be transepts with diagonal valleys, and lean-to roofs like those of aisles; but the succession of slopes should be uninterrupted from ridge to eaves. These conditions require trusses of long span, but not necessarily of greater cost, as intermediate columns and their foundations are avoided. The absence of columns also facilitates the arrangement of machinery. The extreme variations in temperature require a mere shed in summer, and a closed building in winter. These conditions are best met by setting the roof on piers rather than on a continuous wall. The openings are stopped above by windows, and below by doors or by light panels, removable in summer. For ventilation, a number of light chimneys or lanterns of large diameter are found better and far cheaper than a continuous lantern roof.

The mill shown in the illustrative drawing represented part of the Edgar Thomson Steel Works, near Pittsburgh, now nearly completed. It consists of iron trusses, 20 feet apart, covered with sheet iron, and standing on iron columns 25 feet high. The main building is 100 feet by 380 feet, and will be lengthened 80 feet to accommodate four more reheating furnaces. This mill is specially arranged to bloom 2-rail or 3-rail ingots, and to roll these blooms into rails, at the rate of 200 tons per day. It is also adapted to rolling heavy merchant steel up to 60 feet lengths. The 23 inch 3 high rail train is divided into three instead of two stands of rolls, in order to be strong enough for heavy sections. The additional lateral movement of the rail on the heats, thus made necessary, causes no delay in the long run. By means of a movable saw carriage the same driving apparatus which draws the rail to the saws also places the carriage in position to receive the bar from either stand of finishing rolls. Two of the carrying rollers behind the train are driven from the saw engine, and deliver the rail upon the saw carriage. The rail is usually drawn upon the hot straightening plate by power, thus employing the minimum of labor. The 30 inch 3 high blooming train is so placed as to occupy room in the body of the mill otherwise not used, and is so set with reference to the 3 ton hammer, that the blooms are cut in three and chipped, on their way to their heating furnaces. The hot straightening plate is placed between two hot beds, instead of at the end of one, in order to better accommodate two cold straightening presses. As there is not sufficient room across a mill otherwise wide enough, for a hot bed on which 200 tons of rails per day can be conveniently handled, the necessary addition is made, and at the same time a 60 feet hot bed and straightening plate are provided, for long lengths, simply by placing two 30 feet plates and their hot beds end to end. The finished machinery is arranged chiefly with reference to economy of labor in moving the rails, but also with regard to economy of room, as it must all be under roof. The rails lie always longitudinally with the building, and pass straight out at its end, the only lateral movement being across one of the short hot beds and cold beds. The finishing tools are in this case driven by a single engine and overhead shafting, although attaching a small engine to each press and punch is a more common practice. Changing rolls is done by means of a portable crane, which ordinarily stands behind the pinions out of the way. Gas reheating furnaces are exclusively employed in this mill, and in the last two steel mills started in America, as well as in several new iron rail and merchant mills, gas furnaces are being gradually introduced in the best old mills, and it is probable that few American works, save those erected under very exceptional conditions, will in future embody the old and wasteful system of burning solid fuel in individual furnaces. The Siemens system is, of course, the most common, being the most highly developed, and it is, without exception, as far as the author is aware, working well. For reheating ingots, a double flat bottomed furnace is employed, because it is more economical than two single furnaces of equal capacity, and because ingots, especially when charged hot from the molds, do not require a heat which produces a troublesome amount of cinder. The bloom furnaces, however, are made single, because they require a sloping bottom and a slag tap in the rear, but chiefly because it is impracticable to secure the uniform high heats necessary, while constantly charging into and drawing from a large double furnace. The ingot charging and drawing apparatus involves the minimum of labor and of cost. A charge of 14 inch ingots, weighing about a ton each, is laid, in the adjacent Bessemer works, upon a railway car. When the ingots are crystallized, but still red hot, the car is drawn to the reheating furnace by a small locomotive. A workman then thrusts a long peel (made of gas pipe) through a notch in the car, under the ingot, until a stop on the peel comes against the rear of the ingot; he then passes a chain fixed to a hydraulic piston, around a sheave which lies on a beam in front of the furnace, and slips it over a V in the end of the peel. Water then being admitted to the hydraulic piston, the peel slides smoothly into the furnace, carrying the ingot with it; turning the peel to one side, by means of its handles, rolls the ingot off. Thus, in four or five minutes, two men and a boy can charge a Bessemer heat of hot ingots. The drawing is done by throwing a hook over the ingot, and passing the chain the other way around the sheave.

The most important feature of American roll trains, for both heavy and light work, were illustated by drawings constructed by Mr. John Fritz, at the Bethlehem Iron Works. 1st. Like all American 3 high mills, it has grooved top and bottom rolls, instead of grooved bottom and middle rolls, thus greatly economizing in length of rolls, and preventing the necessity of turning the piece over after each pass. The grooves open alternately upward and downward, and hence the fin that was formed in the top of the groove, in the lower pass, is smoothed down by the solid bottom of the groove on the upper pass. 2d. The grooves are opened and closed while the rolls are running. Rectangular bars, and many such shapes as beams and angles are thus worked, in many of their passes, in the same time as by fixed rolls, and with much less total length of rolls than is required in the ordinary 3 high or 2 high mills. This is especially convenient for odd sizes. The bolsters of the middle roll are fixed solidly upon shoulders in the housings by bolts in the heavy mills, and by strutts (to facilitate changing rolls) in the lighter mills. The rolls are counterbalanced so as to reduce the wear on the screws to the minimum, and in such a manner that the whole apparatus hangs conveniently in the pit between the foundations. The housing screws are fitted with telescopic sheaths, so as to prevent the entrance of dirt, and are oiled by means of a central vertical oil hole and radial holes leading from it to the exterior of the screw at various points. The first blooming train in which the rolls were adjusted by power derived from the engine, was erected by the author at Troy, in 1870, and has been almost constantly running on 12 inch and 14 inch ingots. In this mill the middle roll is shifted after each pass, the top and bottom rolls being fixed. In the more recent American mills roll trains are machine fitted on all their bearing surfaces (excepting only the couplings) like steam engine work, and with the same accuracy; and this, to a great extent, accounts for their large and constant production.

The working details of rail mills of this kind are as follows: Ingot heating is not divided into "rounds;" ingots are charged, a Bessemer heat at a time, hot from the molds, into whichever part of a furnace has most room for them, and the hottest ingots are drawn as fast as required for rolling. There may sometimes be thirty or forty ingots in the two furnaces at a time. Blooming trains are ordinarily worked up to the capacity of a pair of five ton vessels, averaging 150 tons per twenty-fours hours; the Cambria train, with two such furnaces, has heated and rolled two rail ingots at the rate of 300 tons per day. The output, with three rail ingots, is about one-fourth greater. The time of rolling a fourteen inch ingot to a seven inch bloom in sixteen to eighteen passes is from 3½ to 4 minutes. The speed of the train is from forty to forty-five revolutions per minute. The engine, directly connected, is 36 inch by 4 feet, or its equivalent, carrying steam at 70 lb., and having a 40 ton fly-wheel. The blooms are cut while red-hot into three single rail blooms, either by a heavy shears or under a three ton hammer. Chipping, when it is required, is so thoroughly done hot under this hammer that no cold chipping is required. Blooms are often taken hot to the reheating furnaces, but this practice is not as yet general. The regular capacity of the average American three-high train may be put down at 200 tons per twenty-four hours, of 60 to 65 lb. rails 30 feet long, although most of the mills have too few re-heating furnaces for so large a product. The Scranton Mill for some time averaged 440 iron rails in one turn, out of eleven ordinary reheating furnaces, or at the rate of some 235 tons per day. The Superior Mill, at Pittsbugh, and the Danville Mill have averaged 360 iron rails per turn out of ten and twelve furnaces respectively. The Cambria Mill and the Troy Mill have frequently made 330 to 340 steel rails per turn, out of nine furnaces, which is 180 to 190 tons per day, or from 1000 to 1040 tons per week of eleven turns, or 5½ days. A 6½ to 7 inch bloom is rolled into a 60 to 65 lb. rail in thirteen to fifteen passes; the rolling occupied 1½ to 1¾ minutes. The speed of 21 to 24 inch trains is from seventy to eighty revolutions per minute. The engine (direct) is, for steel, the equivalent of 46 in. by 4 feet, carrying steam at 70 lb., and having a 50-ton fly-wheel. The fuel employed in gas furnaces does not exceed 400 lb. per ton of product for each reheat; the steam coal varies greatly with the character of engines, and averages some 600 lb. per ton of rails for all rolling mill purposes. The greatest economy of the gas furnace lies in its saving of oxidation. Careful experiments at the Union Iron Works, Pittsburgh, show its saving to be 5 per cent. in heating iron beam-piles, as compared with the coal furnace. A year's practice at the Washburn and Moen Manufacturing Company's Works, at Worcester, gave 2·53 per cent. waste on 1¼ inch iron wire billets, against an average of 7 per cent. with the coal furnace, and at the same works a week's run has been made with 1·34 per cent., oxidation. The saving of steel is, of course, less than that of iron, because the temperatures are lower. The future improvements most required, would appear to be labor-saving machines to handle the work at the rail rolls. A better rail straightening machine is also very much needed. The limit of production for a single train seems to have been practically reached at 200 tons of bars per day; improved quality and machine-handling are now the problems that first require solution.

The project to construct a tunnel between France and England is assuming a practical phase. The capitalists and engineers embarked in this gigantic enterprise demand a concession of thirty years instead of the ninety-nine usually accorded to railway companies, and ask for neither guarantee nor grant. Further, they are ready to advance a sum of 4,000,000 fr. for preliminary investigations. The project in question consists in the immerging of a duct on the English and French coasts, and the boring of two long galleries from each side. The soul of the enterprise, with MM. Michel Chevalier, Leon Say and Rothschild, is M. Lavalley, an engineer, who has surmounted the greatest difficulties in the construction of the Suez canal, and without whom this gigantic enterprise could not have been accomplished. M. Lavalley estimates the cost of the work at 150,000,000 fr.; the English engineers think it will amount to 250,000,000 fr. He suggests that this work should be done partly by France and partly by England, and that to induce the two countries to press on this undertaking energetically, there should be a bonus for the one which works the fastest. The 4,000,000 fr. forming the preliminary capital are nearly all, it is said, subscribed.

Blast Furnace Accidents.

M. Cornuault has done good service in making a communication to the Paris Society of Civil Engineers on the subject of accidents to blast furnaces in the United States, and on the means of preventing such accidents. He says that all those connected with blast furnaces are liable to have to do with disarrangements and dangers, but that few have had the opportunity of witnessing the many kinds of accidents which may occur.

The years 1872 and 1873 were marked by a long series of explosions, and accidents of various kinds in the United States, and especially in Pennsylvania, in consequence of the avidity of the proprietors of furnaces to take advantage of the high price and large demand for pig iron. The blast furnaces were overworked. Excessive charges were adopted, and the action of the furnace raised to the highest pitch.

The first furnace accident in the neighborhood of Pittsburgh was through the breaking down of its charging apparatus. The fall of the charge caused the brick work of the sides to be forced out. This arose from the insufficient thickness of the fire clay brick work at the upper part of the body of the furnace. When the support of the beam to which the cone is suspended is placed too near the edge, the weight of the whole, charge included, is thrown on too small a surface, and just on that part of the masonry which is too weak to sustain the constant shocks and heavy weight thrown upon it. The masonry, then, should be made more solid, and the support of the beam to which the cone is attached further from the axis of the furnace. Strong cast iron bars might also be introduced, and built strongly in with the brick work, so as to bind the whole firmly together.

Two other furnaces at the same works were injured by leaking from the crucible; the liquid iron found its way to the foundations. The usual remedy was applied—clearing out the furnace and pouring in fire clay, mixed up with water, in order, first, to solidify the iron in the fissures, and then to entirely fill up the latter. A furnace at another establishment at Pittsburgh was choked from the crucible up to the level of the stages, about 24 feet, and the troublesome operation of clearing it out to the hight of 8 or 10 feet had been commenced, when the founder asked one of the directors to get him a cannon. A mortar was obtained from the arsenal, and a shot was fired upward against the mass of iron which filled the furnace. Each shot made a portion fall, but the iron becoming pasty afterward, retained the balls. A heavy charge of powder was then placed in the mortar, which was then filled up with cotton waste, and above this was placed a piece of hard ore, weighing about 50 pounds. This extraordinary charge produced its effect. The whole mass of iron and balls came down at once, and the furnace was cleared.

Explosions of blast furnaces are frequent, and the damage done is always serious. The temperature is excessively high in modern furnaces, and the enormous mass of material contained, and the increased hight of the profile are amongst the principal causes which augment the chances of the explosion of gas; the great hot air ways, 16 to 24 inches in diameter, which lead from the blowing engine to the tuyeres, facilitate the entrance of the gases from the furnace to the regulator and the engine, where the explosions generally take place, though in some cases they occur in the hot air apparatus itself.

According to the American metallurgist, Acheson, the rules which should be religiously observed to prevent accidents are: (1) To have good founders, capable of telling whether water has been introduced into the furnace, and to stop it on the instant; (2) to have a proper register which will act rapidly in the principal hot air way, in front of, but very near, the point where the passages enter which conduct the hot blast to the tuyeres, and always to close this valve at the moment the blast is stopped in order to prevent the return of the gas from the furnace into the air passages; (3) to open the traps by means of which the tuyeres are cleared out, immediately after the blast has been stopped, the surest way, however, being to open them just before the blast is shut off, then immediately afterward to close the registers, so that the gases of the furnace have free issue by the traps, but are prevented from entering the hot air ways; (4) if the furnace has a closed throat, always take care to open the charging apparatus when the blast is stopped, and allow it to remain open until the blower is at work again. In order to produce complete security in this respect, a bell should be placed in such a position as to warn the chargers to open the throat at the moment the engineer stops the engine and the blast is cut off.

Theoretically there is nothing new in the above, but, unfortunately, carelessness is no novelty also, and rules like these cannot be insisted on with too much earnestness.—*Iron.*

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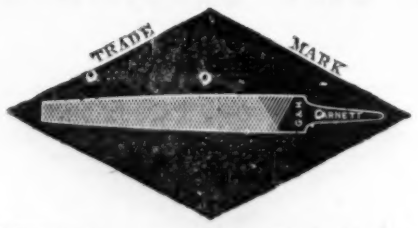

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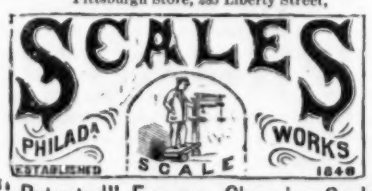

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BUSINESS ITEMS.

NEW YORK.

The Bessemer Steel Works and Rensselaer Rail Mill, Troy, went into blast on Monday, the 21st, on a large order from W. and E. R. R. Corning Iron Works shut down on the 19th—"lack of orders." Burden's Bar Mill and Forge are running, and they have a furnace out of blast for repairs. They will also put a Ford oven in place of the ones on top. J. B. Carrs & Co. Chain Works are shut down for repairs, also Green's Spring Works. Corder & Son are building a malt machine for a Hartford firm. All the stove foundries are running full, some firms shipping 100 to 150 per diem.

NEW JERSEY.

The rolling mill at Paterson is employing 300 men, night and day, turning out floor beams, &c., for the Centennial buildings at Philadelphia, and for the new State Capitol at Albany.

The contract for the Eastern Avenue draw bridge, in Jersey City, has been awarded to the Phillipsburg Manufacturing Company, who undertake the job for $20,000.

The rolling mills of J. Marshall & Co., at Newport and Marshalton, are now making full time, running day and night, with enough orders ahead to continue operations in this manner until November. During that month the mill at Newport will be lengthened 50 feet.

PENNSYLVANIA.

The Glen Rolling Mill, Allentown, started up on the 10th inst., with orders enough to keep its machinery employed for some months.

The Messrs. Brown, of Warren, are about to build a foundry and machine shops at Reynoldsville, Jefferson county.

The Hannock Steel and Iron Company have purchased the works of the National Iron Company, located at Danville.

The Schuylkill Iron Company, of Pottsville, proposes to build extensive works at Washington, N. J., the junction of the main line of the Delaware, Lackawanna and Western with the Morris and Essex Division.

The sheet iron mill of Messrs. Seyfert, McManus & Co., Reading, will commence work in a few days.

The National Iron Company's old mill, at Danville, is soon to be thoroughly overhauled and repaired.

Epping, Carpenter & Co., of the Keystone Steam Pump Works, Pittsburgh, have recently completed a large mining pump weighing seven tons, for Ward, Warner & Co., Mineral Ridge, Ohio.

Clark, Reeves & Co. have a contract to build an iron bridge for the Maine Central Road, at Ticonic Falls.

The Atlas Works, at Pittsburgh, are filling an order for the entire machinery of a new rolling mill at Quebec, Canada.

The Pittsburgh *Dispatch* states that Allen's patent ore pulverizer is now running at Wm. Fisher's works, in that city. The *Dispatch* describes its operation as follows: "It rapidly brings iron ore to a fix at one operation, and will reduce gold quartz and other ores more thoroughly and economically than the stamp, stone breaker and rolls combined, ready for the final action in the amalgamator. The vital parts of the machine consist of two vertical jams that swing or vibrate backward and forward together within a yoke, producing a double rubbing motion. The uniform size of the product is regulated by set screws and levers within the yoke, reducing ore from the largest lumps even down to dust."

MASSACHUSETTS.

Pattee & Perkins, Holyoke, have received an order for five of Perkin's patent hydrants, for a cotton mill at West Warren.

A large rolling mill, 200 feet long by 100 feet in width, is to be erected on the old ship yard at Somerset.

The Swain Turbine Wheel Company, whose manufacturing is done by Warner & Whitney, of Nashua, N. H., propose to build a large machine shop and foundry in Lowell, to manufacture their wheels; also steam engines, and all work necessary to furnish motive power for all sorts of manufactories.

CONNECTICUT.

The New England Ready Motor Company has been organized at Hartford, with a capital of $300,000, for the manufacture of the Brayton motor.

The Hartford Pump Company has for the past year been putting up pumps to raise water by compressed air, in the Eastern States and Canada. The air is compressed by a windmill in which all the working parts are protected from the weather, so that there can be no clogging from sleet or ice in winter. From this windmill the air is carried in pipes any required distance to the well, where it acts directly on the surface of the water in two metal chests, emptying first one and then the other. The device by which the air is supplied and cut off at the proper moment is very simple and ingenious. The stream of water is not interrupted at the charge. At Lakeville, one of the machines supplies a public building, inhabited by eighty to a hundred persons, raising the water 93 feet, at a horizontal distance of about 450 feet. Two at Martha's Vineyard raise water 115 feet, at a horizontal distance of about a quarter of a mile, and supply six houses. The tanks are overflowing a good part of the time, and the owners of the machines say they could supply six more houses with ease. Still another, at Montreal, raises water 103 feet. Wherever the pumps have been set excellent reports have been received. This company is to be congratulated on having recently secured the services of Dr. Geo. S. Miller, late insurance commissioner of Connecticut, as general agent.

NEW HAMPSHIRE.

The water power at Sewall's Falls has been sold to a company which proposes to establish a car factory there.

OHIO.

The Iron and Steel Company's mills, at Ironton, have started in full. The prospects now are that the mills will make a steady run this fall.

The Baltimore & Ohio Railroad are building extensive works at Newark. The works, when completed, will consist of a store house and office 100x50 feet; boiler shop, 70x180 feet; blacksmith shop, 70x180 feet; foundry, 200x70 feet; car shop, 230 feet in diameter, and containing a turning table 55 feet in diameter; wood working machine building, 200x70 feet; and a locomotive shop 275 feet in diameter, with standing room for 30 locomotives. The buildings are of brick and cover 22 acres.

James Means & Co., of Steubenville, are making extensive additions to their foundry and machine works, in the shape of a brick building of a size sufficient to give room for their large business.

WISCONSIN.

Empire Stove Works, of Brand & Co., Milwaukee, employ from 50 to 60 men all the year round. Use 5 tons of iron per day, and turn out from 10,000 to 12,000 stoves annually. The members of the firm are Mr. S. Brand and J. Goldsmith.

ILLINOIS.

A new manufacturing establishment, called the Globe Vise and Tool Works, has been recently started in Chicago by Mastin & Doyle. They will manufacture vises, hammers, sledges, mining and railroad tools.

MINNESOTA.

The Minneapolis Harvester Works have been leased by the company to Messrs. D. Morrison and Jas. L. Spink, for a term of six years, from Sept. 1st. This will be good news to the large number of mechanics formerly employed there, and who, since the works have been shut down, have been out of employment.

KENTUCKY.

The Works of the American Fire Extinguisher Company, at Louisville, are in full blast. The company has a capital of $250,000, and employs 75 hands.

A New Furnace at Chattanooga.

The Chattanooga *Times* gives the following account of the first cast at the Chattanooga Iron Company's new furnace, on the 11th inst.:

We had the pleasure yesterday evening of witnessing the first cast of iron made at the new furnace of the Chattanooga Iron Company, which was blown in on Thursday. About three tons of iron were made, classed as gray forge. Everything worked smoothly, and so far, at least, the furnace is a complete success. It will take several weeks, however, to get the run of the furnace, and to ascertain the charge to which it is best adapted. At present the charge is 1050 lbs. ore (brown and red hematite in equal proportions) and 750 lbs. coke, with about 40 per cent. of limestone.

The successful operation of the furnace will mark an important era in the history of Chattanooga. If this furnace is successfully operated, and makes good iron cheaply, all of which seems very probable from the complete success which has so far attended it, there will be within a few years a half dozen more furnaces located here, and rolling mills, foundries and forges in proportion.

It must also be a source of pride to every citizen of Chattanooga to know that this furnace has been built entirely in Chattanooga—engines, boilers, hot blast ovens, fire brick and common brick all being of Chattanooga manufacture and put up by Chattanooga mechanics. No other city in the Union, except Pittsburgh, is able to build and equip a first-class blast furnace without sending abroad for anything needed in its construction.

The stack of this furnace is 65½ feet high, encased in boiler iron, and having the cup and cone attachment at the mouth. It is 13 feet wide at the boshes and 5 feet in diameter at the door of the hearth, and 6 feet at the top, the hearth being 5 feet deep. Its daily capacity will be from 25 to 36 tons of pig metal. The blowing engine has a 36 inch steam cylinder, and 4 feet stroke, with 120 horse-power at 60 pounds of steam. The steam is supplied from a battery of 4 boilers, each 50 feet long and 33 inches in diameter. The hot blast ovens consist each of 32 tubes, in the shape of an inverted Π, through which the air will be forced with a pressure at the four tuyeres of the furnace of four pounds to the square inch, and at a temperature of 1100°. All of this machinery, the casing for the stack, and the casting used in building, were made by Webster & Marks, and the fire brick by Abbot & Goldman, of this city. The officers of the company are: Dr. J. N. McLane, president; Ed. Dowd, secretary; Hugh McNeal, superintendent. Capital stock, $100,000.

High Temperatures.—Several memoirs upon the highest temperatures actually and theoretically attainable have lately been presented to the French Academy. M. Cailletet has been studying the influence of pressure on combustion. He finds, by means of an ingenious apparatus in which he has been able to burn not only a candle, but also a wick fed with alcohol, in highly condensed air, that the light gradually increases with the compression, finally becoming dazzling and so brilliant as to rival that of phosphorus in oxygen. But then, however, if the pressure be increased, the brilliance of the light diminishes, the flame becomes smoky and flakes of lamp black are deposited. From this it is clear that the temperature of the combustion increases with the pressure up to the point of dissociation of the hydrocarbon gases of the candle. The same fact was shown by the spectrum; the spectrum increased with the temperature up to a certain limit, which could not readily be passed. From these facts Deville draws the conclusion that it is very decidedly an error to estimate the sun's temperature at several millions of degrees. These experiments, as well as those of Berthelot and his own, go to show that there is a limit to possible temperatures, and that a burning body cannot produce heat of an indefinite intensity. "Perhaps," he says, "the temperature of 2000° C. is the highest temperature which can exist in the universe." M. Violle concludes from some experiments which he has made that there cannot be a temperature higher than 1400° C, anywhere.

GEORGE GUEUTAL & SON,

39 West 4th St., New York.

IMPORTER OF

Wood Screws, Steel in Sheets,

BAND SAWS, TOOLS FOR BRAZING, &c.

Bed Screws, Pin Hinges, and Wire Nails a Specialty.

H. W. PEACE,

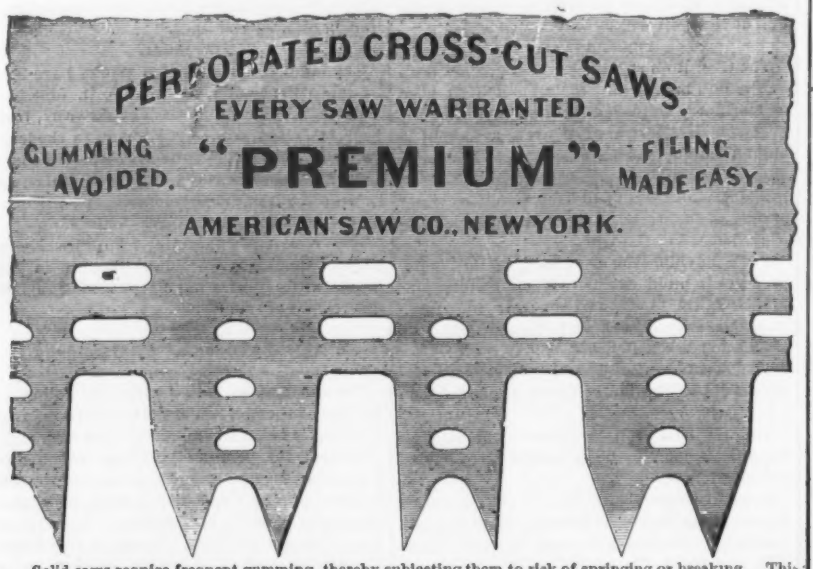
MANUFACTURER OF

SAWS OF ALL KINDS.

FACTORY, WILLIAMSBURGH, N. Y.

AMERICAN SAW CO.,

TRENTON, NEW JERSEY.

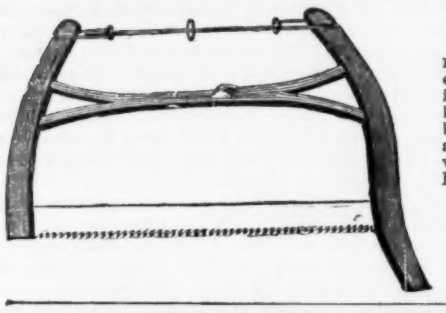


Solid saws require frequent gumming, thereby subjecting them to risk of springing or breaking. This is especially the case with cross cuts having *Patent Teeth*. In the perforated saws **all gumming is avoided** and the teeth are easily kept long and in *proper shape*, saving *files, labor, expense* and *vexation*. As is well known, our saws cut faster, smoother and easier than any other.

MOVABLE-TOOTHED CIRCULAR SAWS AND SOLID SAWS OF ALL KINDS.

Hankins' Elliptic Forked Saw Frame.

Patented June 28th, 1870.



The annexed engraving represents HANKINS' ELLIPTIC FORKED SAW FRAME, which commends itself to the trade for its simplicity of construction. The Forked Brace being all in one piece, without any center bolt, secures for the Frame great strength and durability. These Frames are put up with my best Webs, marked "No. 40, Harvey W. Peace."

HARVEY W. PEACE,

VULCAN SAW WORKS,

WILLIAMSBURGH, N. Y

THE SILVER STEEL
DIAMOND CROSS-CUT SAW.

$1.50 Per Foot.

Patent Secured

PATENT HANDLES AND GAUGE INCLUDED.

THIS new Saw, which is destined to take the place of all Cross-cut Saws in point of **SPEED AND EASE**, is manufactured by **E. C. ATKINS & CO., Indianapolis, Ind.**, who are the

SOLE MANUFACTURERS FOR THE UNITED STATES.

So confident are we that this is the best Cross-cut Saw in the market that we CHALLENGE THE WORLD. Orders promptly filled.

E. C. ATKINS. H. KNIPPENBERG. **E. C. ATKINS & CO.**

Saw Manufacturers and Repairers, Indianapolis, Ind.

R. E. NEIL, President. H. A. LANMAN, Treas. & Manager. F. G. WADDEL, Secretary.

COLUMBUS BOLT WORKS,

COLUMBUS, OHIO,

Manufacturers of BEST NORWAY IRON

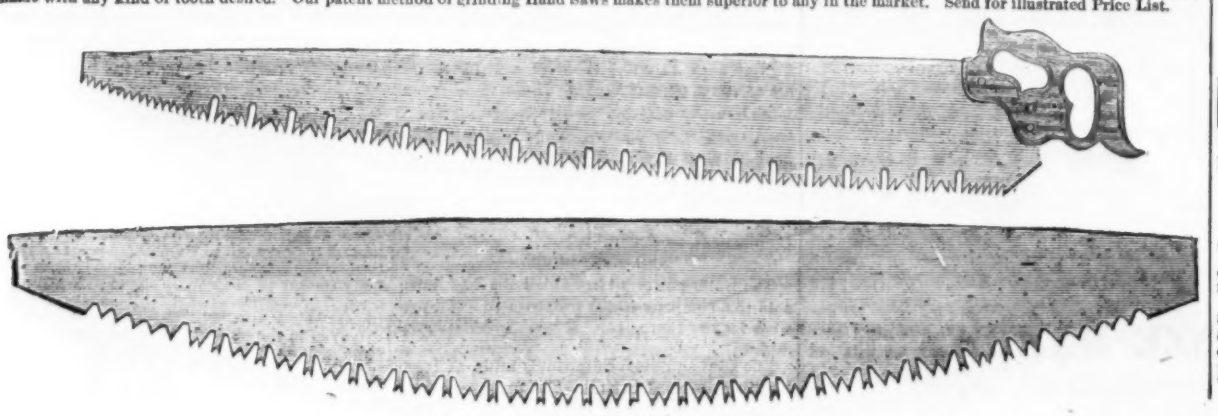
Carriage, Steeple, Cone, Shackle, Elliptic, Shaft and Tire

All the different styles used by the manufacturers of the finest Carriages. Every Bolt warranted true to size and fit. Illustrated Price Lists mailed on application. Our facilities are unsurpassed for the manufacture of **Machine Bolts and Coach Screws.** Correspondence from Car, Bridge and Machinery Builders solicited.

J. FLINT & CO.,

Manufacturers of all kinds of SAWS and PLASTERING TROWELS, Rochester, N. Y.

A large Stock of **Cross Cut Saws** constantly on hand. Orders filled promptly. **Dietrich's Double Handle One Man Cross Cut Saw** made with any kind of tooth desired. Our patent method of grinding Hand Saws makes them superior to any in the market. Send for illustrated Price List.



E. M. Boynton,

80 Beekman Street,

NEW YORK,

Manufacturer of

Saws of all kinds.

Also Sole Manufacturer of

LIGHTNING SAWS.

Two Direct Cutting Edges, instead of one Scraping point.

Note extra steel and durability over the old **V**, outlined on **M** tooth.

I am willing and extremely anxious, on proper notice, to accept a Challenge from H. Disston & Sons, or any responsible Saw Manufacturer, and am ready to back my words with appropriate deeds and $500 expense, if beaten.

N. B.---With Hand, Billet or Cross Cut Saw, $500 on each.

E. M. BOYNTON.

I make a specialty of the LARGEST SIZES of **Circular Saws**, and call particular attention of lumber manufacturers to the following points of excellence:

Evenness of Temper.—The peculiar structure of my furnace subjects all parts of the saw to a DEAD heat, and when dipped in the oil bath secures perfect uniformity.

Perfect Accuracy in Thickness.—My saws are ground on a patent machine, automatic in its operation, grinding off the thick places upon the plate before the thinner parts are reached, and when the saw is removed BALANCES PERFECTLY, which is proof positive of the right accomplishment of the work.

Properly Hammered.—Great care is taken that no saw shall leave my works without due attention in this important particular. A saw too tightly strained upon the rim, or too loose in the center, cannot be successfully run—hence the importance of so hammering the saw as to effect equal strain in all its parts, and at the same time RUN TRUE. This department is under the personal supervision of myself, who has devoted over *twenty years* to the art of saw making.

I am sole proprietor and manufacturer of the celebrated **"Challenge" Cross-Cut Saw.** Price Lists of all kinds of saws sent on application.

JAMES OHLEN.

LIST OF HARDWARE DEALERS.

Having compiled a complete list of the **Hardware Dealers** in the United States, expressly for addressing circulars, I am prepared to receive orders for addressing **ENVELOPES, CIRCULARS, &c.** The printed address is cut from the list and stamped upon the envelope or wrapper, thus enabling me to address a great number in a short space of time, and at rates far below the prices usually paid for this work. It answers all purposes, and can be done for one-third the expense of addressing by hand. My list contains names of over 4000 dealers, each State, city and town therein, being compiled separately. Wholesale Dealers and Manufacturing Co.'s, whose custom it is to send out circulars, price lists, &c., to the trade throughout the States cannot fail to find my list and style of addressing a great advantage to them, as it is a great saving of both time and expense. It has been tried by a large number in the trade, some of whose names appear at the bottom or this circular and to any of whom I would most respectfully refer. My rate for addressing is $2·50 per M. Envelopes, &c., sent to the address below, will receive prompt attention, and will be addressed and returned at once, or envelopes, &c., will be furnished at market prices. For further information, address,

CHAS. B. SMITH, No. 115 Broad St., N. Y.

REFERENCES.

Union Nut Co., 78 Beekman st, L. Boardman & Son, 82 Chambers St., Millers Falls Co., 79 Beekman St., E. M. Boynton, 80 Beekman St., Yale Lock Mfg. Co., N. Y.

P. S.—Copies of my list will be forwarded to any address throughout the U. S. upon receipt of $2·50.

NEW YORK, February 26, 1874.

Cutlery.

THE MILLER BROTHERS CUTLERY CO.,

Manufacturers of

PATENT FINE PEN & POCKET CUTLERY

WEST MERIDEN, CONN.

The **only Knives made** that are put together in such a manner that there is no strain on the covering or frail part of the knife. We warrant our knives equal in cutting qualities and workmanship to any made, and are acknowledged by English makers as the **Best American Knife.** We also make

NICKEL & SILVER PLATED POCKET KNIVES

which will not rust or become discolored when used as a Fruit Knife, and their cutting qualities are equal to any other knife. Orders filled from the factory or by

J. CLARK WILSON & CO., 81 Beekman Street, N. Y.

AMERICAN

PEN AND POCKET KNIVES,

MANUFACTURED BY *PEPPERELL,*

Aaron Burkinshaw, AB MASSACHUSETTS.

My Blades are forged from the best Cast Steel, and warranted. To me was awarded the GOLD MEDAL of the Connecticut State Agricultural Society; also a MEDAL and Diploma from the Mass Mechanics' Ass'n Sept., 1860

WHEELER, MADDEN & CLEMSON,

Manufacturers of Warranted Cast Steel

SAWS

of every description, including

Circular, Shingle, Cross Cut, Mill, Hand, Roberts' and other Wood Saws,

&c., &c

Cast Steel Files

of the well known brand of

Wheeler, Madden & Clemson.

FACTORIES:

Middletown, Orange Co., N. Y.

BRANCH OFFICE:

97 Chambers Street, New York.

BRUNDAGE FORGED HORSE NAILS,

Manufactured from

BEST NORWAY IRON,

by BRUNDAGE & CO. Sold by

WHEELER, MADDEN & CLEMSON

Middletown, Orange Co., N. Y.

THE

Wethersfield Novelty Co.,

Manufacturers of

Builders' Hardware

AND

PLATED GOODS,

Wethersfield, Ct.

Brass and Iron Founding. Light Castings for outside parties a specialty.

Gold, Silver, Nickel and Bronze Plating. Orders solicited.

Communication from Hartford by Horse or Steam Cars.

BUY THE BEST

OHIO TOOL CO.

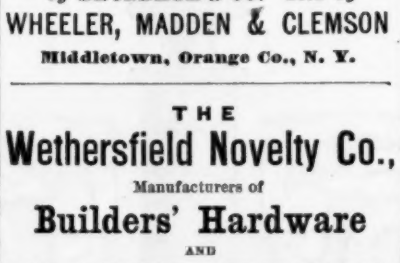
Bench & Hand Screws.

V, Square, and Patent Bevel Thread.

J. CLARK WILSON & CO., Agents,

81 Beekman St., N. Y.

OHIO TOOL CO., Columbus, O.



Manufactory of the Spencerian Pens, Birmingham, England.

SWAN QUILL Action!

SPENCERIAN

STEEL PENS.

These Pens are comprised in 15 numbers; of the NUMBER ONE PEN alone we sold more than

5,000,000

In 1873.

and the sale is continually increasing.

They are of superior English make, and are justly celebrated for their elasticity, durability, and evenness of point. *For Sale by the trade generally.*

☞ *To accommodate those who may wish to try these Pens, we will send a Sample Card, containing all of the 15 numbers, by mail on receipt of 25 cents.*

IVISON, BLAKEMAN, TAYLOR & CO.,

138 & 140 Grand Street, N. Y.

KING, BRIGGS & CO.,

ENGLISH

HARDWARE.

WOSTENHOLM'S

IXL

POCKET KNIVES,

KNIVES & FORKS,

RAZORS,

SCISSORS, FILES, CHAINS,

ANVILS, VICES,

GUNS.

80 CHAMBERS ST. NEW YORK

WILLIAM A. CARLYLE,

Importer of the

Celebrated XL all Cutlery.

Agent for LUKE OATES & CO., Sheffield.

50 Cortlandt Street, one door west of Greenwich Street, New York.

VAN WART, SON & CO.

Hardware Commission Merchants,

BIRMINGHAM, - ENGLAND,

Agents,

VAN WART & McCOY,

48 Chambers Street, New York.

George H. Gray & Danforth,

48 India Street, Boston.

F. W. TILTON,

17 Old Levee Street, New Orleans.

At each of these places a complete assortment of samples of Hardware and Fancy Goods will be found, including all new descriptions. Sole Agents for

John Rimmer & Son's Celebrated Harness and other Needles.

OSCAR IRVING VAN WART & Co.,

FORWARDING AGENTS,

2 South John Street, LIVERPOOL.

SCHOLEFIELD, GOODMAN & SON.

(Formerly JOSHUA SCHOLEFIELD & SONS.)

GENERAL

Hardware Merchants,

BIRMINGHAM, - ENGLAND.

Agents and Sample Rooms.

New York—Edward Frith, 16 Cliff Street.

Boston—H. L. Richards, 18 Batterymarch, Street.

New Orleans—R. Rhodes, 71 Camp Street.

Montreal—J. J. Evans 14 St., John Street.

ESTABLISHED 1852.

NEW YORK KNIFE CO.

MANUFACTURERS OF SUPERIOR

Table & Pocket Cutlery,

WARRANTED TO BE MADE OF THE BEST MATERIAL.

WALKILL RIVER WORKS,

Walden, Orange Co., New York.

THOS. J. BRADLEY, President.

Wood's Hot Water-Proof Table Cutlery.

Handsomest, Cheapest, most Durable Cutlery in use.

Wood's Celebrated Shoe Knives. Butcher Knives a specialty.

WOODS CUTLERY CO., Antrim, N. H.

No. 99 CHAMBERS STREET, N. Y.

Notice of Removal.

ASLINE WARD,

From 54 Beekman St. to No. 101 and 103 Duane St., N. Y

REPRESENTING

GEO. WOSTENHOLM & SON

CUTLERY AND RAZORS,

WASHINGTON WORKS, SHEFFIELD.

CORPORATE MARK.

IXL

FRED'K WARD & CO., SHEFFIELD,

CUTLERY & TABLE KNIVES.

CORPORATE MARK.

B4*ANY

PHILADELPHIA CORRESPONDENCE.

PHILADELPHIA, Sept. 21, 1874.

Notwithstanding the very general feeling of regret that the fall has not as yet brought with it the expected improvements in trade, there is each day a little more doing, and the hope is gaining ground that the closing business of 1874 will not be so small as many think. Relative to the iron trade, while speculation is idle, as to the prospect of the future, without a thorough canvass of the whole country, which is impossible, it is clear that an undercurrent of belief is manifesting itself, which points to better prices and greater activity.

In a recent article in the Pittsburgh *Commercial*, a paper carefully edited and generally thoroughly correct in its statements, this feeling is strongly manifested, and probably owes its inspiration to one or more of the great manufacturers of that city. In politics we say, "As goes Pennsylvania so goes the Union," and in iron circles, if not said, it is strictly true, as Pittsburgh does so does the whole trade. Believing that the article referred to more clearly expresses the actual situation than anything lately published, and is, moreover, an intelligent and business-like survey of the condition of trade, I quote it here. The *Commercial* says:

"The outlook in the iron trade in manufactured iron and nails continues to be encouraging, and on all sides a little inquiry show signs of improvement. The meeting of the Western Bar Iron Association, which was held in this city to-day, showed a state of affairs which was encouraging to a degree that surprised many who had been in a position to suppose themselves fully posted as to the state of trade. All the manufacturing points west of the Alleghany Mountains were fully represented, and the reports made by members show that all the mills are running, many of them on double turn, and that they are well supplied with orders for the season.

"The reports from other sections of the country are not so encouraging. At Troy, N. Y., and at other points, the trade is despondent; but we notice that the trade is in the worst condition where it has been in the closest connection with railroads and in furnishing railroad supplies. For the latter part of 1873 and the first months of 1874 the greatest economy was necessarily practiced in railroad expenditures, but the time has come when "renewals" are absolutely necessary on many of the best managed and best constructed roads in the country. The demand for this purpose cannot be evaded or postponed. Already the signs of improvement are marked. They will continue to widen until, within a few months, we believe the demand will equal the consumption of 1873. Again, the lower prices prevailing will stimulate the demand in other channels of consumption.

"Pig iron, No. 1, is now selling at $31 against $43 a year ago, and rails at $60, compared with $76. The reduction in rails encourages railroads of good means to buy rails, and many companies are availing themselves of the present low prices for laying new tracks or relaying old ones. The reduction in pig cheapens all iron manufactures, with a manifest encouragement to the production of machinery and to other branches in which there is a bulky consumption of iron affecting materially the cost of the manufactured article.

"There are substantial reasons, in full accord with all the laws of trade, of supply and demand and of consumption, why it is reasonable to expect an early and satisfactory stimulus to be imparted to iron production and iron manufactures in all their varied ramifications. Again, English iron makers are competing less and less every year in the American markets. As will be seen from the following quotations from the English price currents, iron has fallen inabout the same ratio there as here:

	Aug. 28. 1874.	Aug. 29. 1873.	Aug 30. 1872.
Bars, etc., British	£9·15	£12·5	£12·7
Nail rods	10·15	12·15	16·0
Hoops	12·15	14·5	18·10
Sheets	14·5	15·15	21·0
Bars, Wales	9·5	12·0	11·15
Rails	9·5	11·15	11·15
Pig, No. 1 Clyde	4·12	5·18	6·12
Swedish	17·20	20·10	17·10

"But the fall in prices has not been accompanied with anything like the average export of iron to the United States, as will appear from the following official statement of the shipments from Great Britain to this country, during the first seven months of this year, compared with the corresponding time in 1872 and 1873. It must be remembered that last year the importations were exceptionally light; it is fairer, therefore, to make the comparison with the previous year:

	1874. Tons.	1873. Tons.	1872. Tons.
Pig	29,390	71,168	141,823
Bar, angle, bolt and rod	2,379	21,095	44,284
Railroad	72,631	134,393	300,316
Hoops, sheets and plates	3,396	13,834	19,315
Cast or wrought, & other manufactures	15,048	9,594	8,013
Steel	7,603	12,624	14,132
Total	130,447	262,718	527,883

"As compared with 1872, England's export of iron to this country has fallen off three-fourths. This reduction in the supply of foreign iron is an important element that must exercise much influence on the home trade. Another important fact in favor of an early revival of the iron interests is that we are just starting on the wave of a general recovery of trade, which will, of course, increase the demand for iron products. For these various considerations there is good grounds for the hopeful feeling that now prevails among iron manufacturers, and no reason for despondency."

City news is not of remarkable interest to the trade, and may be briefly itemized.

At the Pascal Iron Works of Messrs. Morris, Tasker & Co., a fly-wheel, 14 feet in diameter, 26 inches on the face, and weighing 7 tons, burst on Thursday, killing one of the workmen. This wheel made 52 revolutions per minute, the speed of its periphery being 2200 feet per minute. The belt used was 20 inches, running on a large pulley. The engine was built in 1869 by Hoff, Fontaine & Co. of the best material. The senior member of the firm testified at the inquest on the body of the man killed, that the pulley had broken first, and the belt had run from the line of shafting, which had stopped running before the crash, the engine "running away" at terrible speed. These mysterious accidents are not unusual in rolling mills, and from the immense velocity at which the fragments of iron are hurled through the surrounding space almost invariably cause loss of life.

Notwithstanding the stereotyped expression of "nothing doing," we find that the Pennsylvania Steel Works shipped last week the largest amount of rails ever shipped in a single week since the erection of the works, the amount being 1150 tons. From the Lehigh Valley we hear reports of considerable stocks of pig iron; from companies being credited with stocks of over 30,000 tons on the aggregate. This, however, is not extraordinary, and an advance of one dollar per ton would clear it all off the banks in a short time.

The project of a new railroad between this city and New York is assuming practical shape, and now will be speedily built. The road is to be the joint property of the North Pennsylvania and the Delaware & Bound Brook Railroad Company, the latter being composed almost entirely of the officers and stockholders of the former, and including some of our most prominent business men. The right of way has been all secured, and a contract let for the graduation and masonry of the section from Jenkintown, on the North Pennsylvania Railroad, to the Delaware River at Yardleyville, a distance of twenty miles. Thence to Bound Brook, on the New Jersey Central, the distance is thirty miles. The route is said to be favorable, free from curves, and the road can be constructed for $25,000 per mile. Running through an especially fertile section of both Pennsylvania and New Jersey, the road will be of importance in developing this section, independent of the additional connection with New York. The intention of the companies, as stated, is to make the distance between New York and Philadelphia in two hours at $2 fare. This, if carried out, will no doubt bring the United Railroads of New Jersey to the same time and terms, as trains are now regularly run in two hours and forty minutes, and without stoppages, on a track devoted solely to passenger traffic, the distance can be easily made in two hours.

The first fall meeting of the Franklin Institute was held during the week, and brought out reports from the Committee on the Exhibition that the building was already opened for the reception of articles, some having been received.

An important communication was received from the Chairman of the Commission appointed by the United States Government to investigate the causes of boiler explosions. This Commission desires to avail themselves of the results obtained by the Institute in the tests made some years since, and to have the aid of a committee of its members in their investigations. The proposed investigation will, therefore, be made under the best auspices, and doubtless produce results of real value.

The Pennsylvania Railroad Company proposes the erection of very extensive stock yards and abattoirs on the flats of the Schuylkill River, fronting on the present yard of the company, and extending north from the grain elevator. As this location is directly opposite a thickly built section of the city both the Board of Health and citizens owing property near by are protesting against such action as injurious.

A mass meeting of workingmen was held in Independence Square on the evening of the 19th inst., avowedly for Centennial purposes, but really to express their views of the dignity of labor. The only points in the resolutions at all noticeable are the recommendation of an universal eight hour system, and the somewhat paradoxical statement that they are not in any way opposed to the apprentice system. If these men would only demonstrate the truth of the last statement by their acts, we should soon have a fresh supply of American skilled labor.

The Senate Committee, which lately visited the various Navy Yards, will, it is said, report in favor of transferring the Washington Navy Yard to League Island, in this city. The Navy Department encourages this action, believing that one great yard at this point will be of importance to the interests of the navy.

An examination of the partners of the bankrupt firm of Jay Cook & Co. was held before the register in the case during the week, and the testimony of the senior partner, as to the cause of failure, was that the firm had "too many eggs in one basket." A city paper, commenting on this statement, complains that the eggs were unfortunately those of other parties, and in many cases "nest eggs," deposited on the expectation of being used in ordinary banking, but all put into the North Pacific basket. A dividend assured the creditors months since is not yet paid, the funds having been absorbed under a preference for the Washington branch. Although trade is dull, the great number of large building operations in hand gives employment to most of the labor offering, and no fears are felt of a return of the troubles of last winter.

The Henderson Process at the New Jersey Steel and Iron Company's Works.

Mr. James Henderson, inventor and patentee of the fluorine process of purifying iron, has lately conducted a series of important and interesting experiments at the works of the New Jersey Steel and Iron Company (Messrs. Cooper, Hewitt & Co.), Trenton, which have given results entirely satisfactory. The materials used were 100 parts Ringwood magnetic and titaniferous iron ores, and 40 parts, by weight, of fluorspar. The process was applied in a double puddling furnace, with water bottoms, fettled in the usual way with iron ore. The pig iron was melted in the furnace.

The mode of application was to mix finely powdered fluorspar and iron ore and charge it upon the bottom of the furnace. After being exposed for 5 to 7 minutes to the heat, the mixture became hard enough to support pig iron laid upon it. The iron was then charged upon it and was turned over several times while melting. After melting it was left undisturbed for 20 to 30 minutes, during which time the mixture became dissolved and passed into solution among the iron, and when entirely melted off the bottom, the workman took charge of it and worked it in the usual way. When the mixture is dissolved, the purification of the iron of its silicon and phosphorus is nearly complete, so that it has become purer than metal that has been subjected to the refinery process, and the time occupied by this process is just so much to be deducted from the labor the puddler would otherwise have to perform. It took Ringwood magnetic ore and fluorspar about 20 minutes to dissolve, and the titaniferous ore and fluorspar about 30 minutes. With white pig the overflow of cinder from the furnace was very soon after commencing work. The following may be taken as an average of the work done with white pig iron. Five heats made June 17; 900 lbs. charges white Durham pig and 200 lbs. of the mixture:

	1st heat. h. m.	2d heat. h. m.	3d heat. h. m.	4th h't. h. m.	5th h't. h. m.
Charged pig iron	7 00	9 18	11 32	1 55	4 03
Worked	8 00	10 18	13 32	2 55	5 03
Overflow of cinder	8 14	10 35	12 49	3 03	5 07
Dropped	8 25	10 40	12 55	3 12	5 15
Bailed	8 43	11 00	1 18	3 35	5 40
Out	9 00	11 12	1 34	3 48	5 54

The muck bars were melted in a Siemens furnace, and converted into steel by the Martin process. The steel is of excellent quality. The following is a fair average of the results had with gray forge pig iron, using 800 lbs. charges to 200 lbs. of the minerals:

	2d heat. h. m.	3d heat. h. m.	4th heat. h. m.	5th h't. h. m.
Charged pig iron	7 43	10 37	12 40	3 06
Bottom clear and worked	8 38	11 27	1 44	4 06
Overflow of cinder	8 54	11 43	1 53	4 15
Dropped	9 05	....	....	....
Delay by stoppage of machinery	....	not taken.	not taken.	....
Out	10 02	....	2 30	4 56

The yield averaged about 97 per cent. of muck bars from gray forge, and 95 per cent. from white pig. The ore used for fix or fettling was the same as in the old process. Cinder bottoms were made once a week. The wear upon the brickwork of the furnace was not more than usual with the old process. The cost of the minerals at Trenton is about $2 per ton of iron treated, ordinary qualities of pig iron requiring less than cinder pig iron. The most inferior cinder pig iron that could be procured was used to test the process, and it gave superior quality of bar iron which classes as best best. Ordinary anthracite pig iron was made into the finest quality of wrought iron, which was equal to that from the best brands of Swedish iron. As the process can be worked to better advantage when using molten iron from a cupola or blast furnace, a cupola will shortly be used in connection with this process at Messrs. Cooper, Hewitt & Co.'s works.

These trials remove any doubts that may have hitherto existed in the minds of the practical men who witnessed them of the economical application of the process for the production of the higher grades of wrought iron, some of which are not made in this country by the old process.

Sanitary Science in House Building.

Prof. Thomson says:

While progress has been made with gigantic strides in many directions, in engineering and in mechanics generally; while railways, steamboats and electric telegraphs have extended their wonders to the most distant parts of the world; and while trade, with these aids, is bringing to our shores the produce even of the most distant places, to add to our comfort and our luxuries; yet, when we come to look to our homes, to the places where most of our population have to spend nearly the whole of their lives, I think we must find with regret that in matters pertaining to the salubrity and general amenities of our towns and houses, as places for residence, due progress in improvement has not been made. Our house drainage arrangements are habitually disgracefully bad; and this I proclaim emphatically, alike in reference to the houses of the rich and the poor. We have got, since the early part of the present century, the benefit of the light of gas in our apartments; but we allow the pernicious products of combustion to gather in large quantities in the air we have to breathe; and in winter evenings, we live with our heads in heated and vitiated air, while our feet are ventilated with a current of fresh, cold air, gliding along the floor towards the fire place to be drawn uselessly up the chimney. A very few people have commenced to provide chimneys or flues to carry away the fumes of their more important gas lights, in like manner as we have chimneys for our ordinary fires. In mentioning this, however, as a suggestion of the course in which improvement ought to advance, I feel bound to offer a few words of caution, against the introduction of flue pipes for the gas flames rashly in such ways as to bring danger of their setting fire to the house. People have a strong tendency to require that such things as these should be concealed from view. In this case, however, special care should be taken against rashly placing them among the woodwork between the ceiling of the apartment and the floor of the room above; or otherwise placing them in unsafe proximity to combustible materials. In many cases it would be better to place the flue exposed to view underneath the ceiling, and by introducing some accompanying ornamentation to let the flue be regarded as a beneficent object not unpleasing to the eye.

The Carboleum Engine.—Much interest has recently been created in Holland by the publication in Prof. Huisinga's Journal of an article descriptive of Dr. Beins' Carboleum Motor. It appears that for many years Dr. H. Beins, of Groningen, assisted by his brother, Mr. J. F. Beins, manager of the Netherlands Soda Factory, at Amsterdam, have been engaged in exepriments with a view of transforming heat into mechanical power more advantageously than is done in the steam and other engines at present in use. In one of these experiments they sought to find what degree of tension the carbonic acid given off by bicarbonate of soda would have, and were surprised and pleased to find that this sodium salt (or the corresponding potassium salt) in a dry pulverized state, or in an aqueous solution, when heated in a closed place gives off a portion of the carbonic acid, which is condensed at the cold end of the space, so that a temperature of 300 to 400 C. liquid carbonic acid can be distilled out with a tension of 50 or 60 atmospheres. Dr. Beins has shown the experiment to several scientific men in Holland, who have taken the greatest interest in the matter. The compressed state of the gas is a condition of great importance for its application in technical chemistry and Dr. Beins has found that the liquid acid which he calls carboleum, supplies an excellent motive power under certain circumstances. He explains that it is only when a carboleum engine works with great intermission that the heat of evaporation required can be taken from the sides of the reservoir without artificial heating. In the majority of cases, however, the carboleum must be evaporated by the artificial heating of small quantities at a time. The heat required per horse-power hourly (270,000 kgrmtr.) amounts at least to 648 calories (0·1 kilo. coal).

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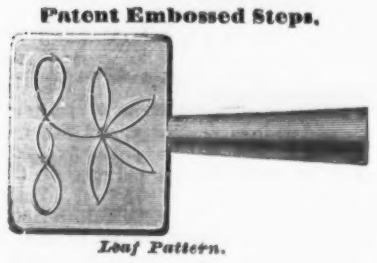
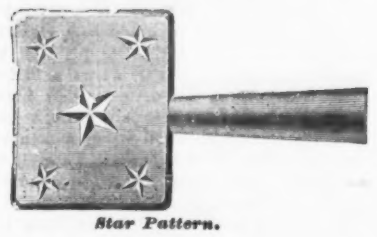
Patent Embossed Steps.



Leaf Pattern.



Star Pattern.

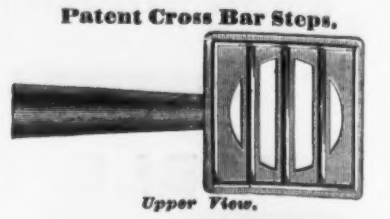
King Bolt Yokes.

Established 1850.

No. 6 Fifth Wheels.

1871 Pattern Shaft Couplings.

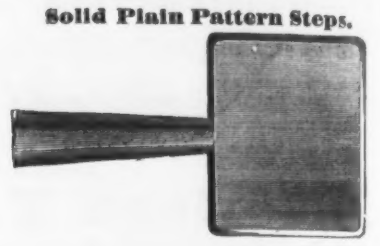
Patent Cross Bar Steps.



Upper View.

Lower View.

Solid Plain Pattern Steps.



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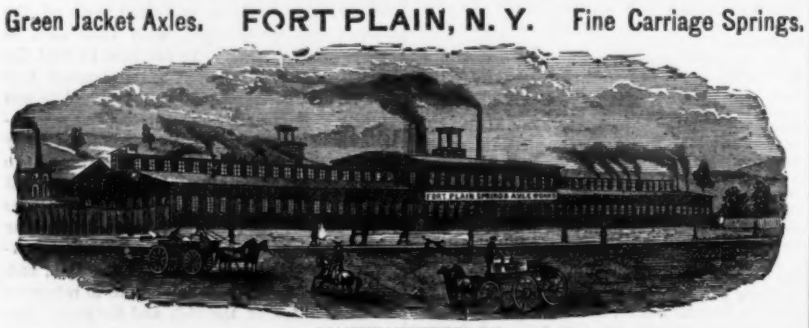

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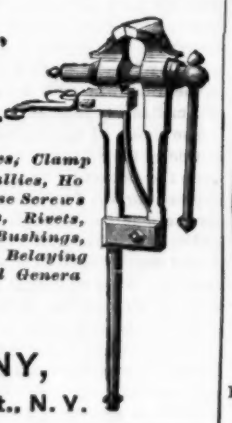

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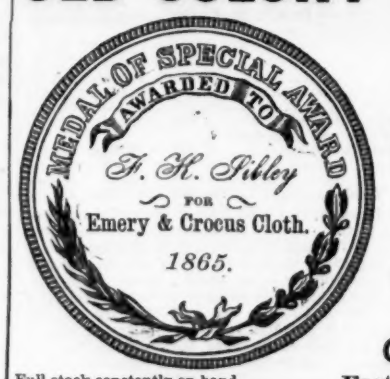

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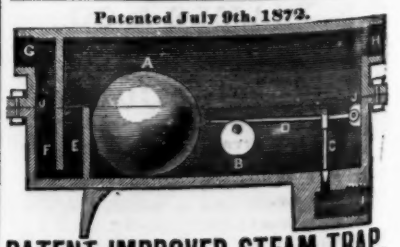

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New York, Thursday, September 24, 1874.

DAVID WILLIAMS . . . Publisher and Proprietor.
JAMES C. BAYLES . . . . Editor.
JOHN S. KING . . Business Manager.

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CONTENTS.

Protection not a Political Issue.

To those who read aright the signs of the times, it must be evident that the friends of home industry cannot work too vigorously at the present time to establish the system of protection on a basis independent of political parties and professional politicians. There is, of course, no immediate danger, under any circumstances, of a general revision of the tariff in the interest of foreign manufacturers, for the necessities of the government for a regular supply of coin must be provided for in a customs revenue, and all the talk of the free traders about a revenue tariff means, to those who understand it, practical free trade, with as little revenue from customs as possible—a change for which the country is in no respect ready. Until we shall be better able, because of an increase of population, production and accumulated wealth, to bear the burden of a taxation equal to the expenses of the government and the necessary annual disbursements of the Treasury, on account of the public debt, we shall need our $175,000,000 of customs revenue in gold—unless, indeed, the people will consent to the raising of that amount by the direct taxation of incomes, sales, personal property, &c. We are willing to admit that the existence of a necessity for a great revenue is a public misfortune, and that the country would be much better without taxation in any form than with it: but so long as large revenues must be raised from taxation, the mass of the people would not long hesitate in making a choice between the continuance of a customs tariff and the imposition or revival of direct taxes, always unpopular, and particularly so in a republic.

With these facts in mind, we cannot but regret the evident disposition now manifested by the framers of political platforms, to make the question of free trade or protection a party issue. To do this is to degrade a vitally important question of national policy to the base uses of office seeking politicians. Such a prostitution of the question is, moreover, a mistake on the part of the politicians, for it involves a promise on behalf of those representing the free trade element in politics which, in the event of success at the polls, they would not dare to make good. No party, however strong, would venture upon the suicidal policy of repudiating the just debts of the government, nor of substituting direct for indirect taxation. The next election would sweep it out of existence. Moreover, a division of parties in such an issue does not leave intelligent men free to follow their opinions on other questions. The friends of protection, whatever their views respecting the policy of the administration, the treasury management, or the tendencies of Congressional legislation, cannot support a party or vote for a candidate whose platform contains a free trade plank, however otherwise satisfactory. It is equally to be regretted that the party in power is thus permitted to claim for itself the especial honor of sustaining the system of protection, for there are, doubtless, many intelligent and consistent friends of home industry, who do not agree with it on other subjects nor choose to follow its lead in other matters, and to whom the moral obligation of voting brings the embarrassment of a divided duty.

Let us have an end of this particular species of political demagogueism. Protection is not a system which any party, as a party, has a right to make a political issue. It should outlast all parties, and, in the favor of the people, stand above all questions of party policy. It is the one substantial good, standing alone among the many evils resulting from the war; it was, and still is, necessary as a means of guarding the industries of the country, great and small, from being crushed by a taxation which, without the tariff, must be greater than they could bear in the face of unrestricted foreign competition. During the ten years which would otherwise have been consumed in a slow and partial recovery from the effects of the war, we have experienced an unexampled prosperity, accompanied by a healthy and sustained industrial development, which stands without parallel in history. During the decennial period ended with 1870, the value of our annual product of manufactures increased about 119 per cent., with a steady average decline in prices from 1866. High wages, which could only be paid under a system of economic legislation which recognizes the fact that the true prosperity of a country is increased by the condition of its working classes, has brought us a steady inflow of immigration to more than compensate for the loss of population and prospective increase resulting from the war, beside stimulating inventive talent in the improvement of labor-saving machinery, in which we lead the world. These are substantial and permanent benefits, which are not offset by any evils, save those which originate in the imaginations of free trade theorists. The tariff has fostered no "monopolies" save those of a purely national character, and none of which any one but a foreign manufacturer, desirous of retaining this market for the products he cannot sell elsewhere, can with any justice complain; it has imposed no burdens upon consumers, since it has not of itself enhanced the cost of home manufactures nor, materially, necessities of foreign make; it has benefited all classes, without regard to party affiliations and political creeds, and it should stand on its own merits whether the majority in Congress belongs to one party or the other. We need the tariff. Compared with the question of its maintenance or overthrow, all questions of a purely partisan character are of minor importance. To make it a party issue is an outrage upon our civil liberties; to allow it to be identified with the policy of any one party and monopolized by it, is to give that party an undue hold upon the suffrages of the people of the country. Let it be maintained without regard to party, and left unimpaired as a rich legacy to posterity.

The Minor Economies in Manufacturing Operations.

If the progress of the next half century were to be estimated from the history of the half century ending with the current year, we should have to call upon the imagination of the writers of extravagant romance to enable us to picture the state of civilization which would exist in the year 1924. The popular idea seems to be that we shall continue to progress in the same ratio as heretofore, until the wildest conceptions of those who now amuse us with burlesque prophesies of the future shall have become the accomplished facts of every day experience. This is possible, but it is by no means probable. If we trace the history of civilization up to the beginning of the present century, we see that the rapid progress since that date was led up to by slow approaches, beginning in the systematic application of power to manufacturing operations early in the seventeenth century, and continuing until a point was reached when a rapid and sustained progress was possible. Science, then in its infancy, began to solve the mysteries and interpret the laws of nature, and then came to the aid of industry with the knowledge it had gained. From a rude and complicated contrivance of limited power and restricted utility, the steam engine developed into its present forms; cheap and convenient power, easily distributed, rendered the substitution of machinery for hand labor possible, and from the ruder employment to which arms of iron and fingers of steel were first considered adapted, mechanism now performs services at once beyond the strength and skill of man. Inventive talent has been employed in all civilized countries to bring these mighty agents of human progress to perfection, and as discovery after discovery and improvement after improvement were announced to the world, it seemed as if there was no limit to be reached short of a realization of the dream of power from nothing, or, at least, of power which should cost nothing. The more we learn, however, the more we realize the fact that we are nearing the limit already, and that it is possible to reduce the cost of manufacturing by a very small margin only before we shall have reached a point when economy will cease, and the cost begin to increase again. We can now make boilers that will evaporate ten pounds of water to one pound of fuel burned under them, and when a further economy is sought the saving effected is less than interest upon the increased cost of the boiler. The same is measurably true of steam engines. The best now manufactured consume two pounds of coal per horse-power per hour. This is far better than the average, we admit, but the maximum of economy can only be approached slowly, as old engines wear out and new ones are built to take their place. But we now know when and where the limit of attainable economy will be reached in the steam engine, and it is not far distant or difficult of attainment. We also know approximately, if not exactly, what can be done with water wheels, caloric engines and the countless substitutes for steam power which have been tried from time to time during the past century and a half, with tide power, compressed air and electro-magnetism. None of these, excellent as they may be for specific purposes, afford any promise of cheap power available for general manufacturing purposes. A careful and intelligent survey of the whole subject shows, therefore, that there is but little to warrant the belief that we are on the eve of a mechanical revolution, or that it will hereafter be impossible to cheapen power materially unless we can reduce the cost of coal by devising cheaper methods of mining and transporting it.

With these facts in mind we conclude that, unless some great discovery is made of which we have no hint or suggestion at this time, the progress of the next half century, as regards the cheapening of the cost of manufactured products, will lie chiefly in the direction of economy in little things. In our rapid progress we have overlooked too many of the minor details of seemingly small importance, but which, in the aggregate, are of vast consequence. We have sought the great economies successfully, and we must now go back to pick up every wasted fragment and turn it to account. We know of no workshop or factory so well organized that the largest attainable results are effected by a minimum expenditure of time, power and labor, or in which preventible and costly mistakes are not sometimes made: and we have yet to see a continuous process of manufacture so perfect in all its details that no greater economy is possible. Close, careful and intelligent study will often reveal waste where none was suspected; exact system and perfect discipline in a workshop or factory will often effect a wholly unsuspected saving, both in the wear and tear of tools and machinery, and in the saving of waste in raw material, power and time. The difference between success and failure often lies in the difference between good management and bad management, and the lack of system in the management of his business has bankrupted many a manufacturer who might have succeeded in life had he sooner learned the importance of looking after little things.

In an article addressed as this is to readers in a number of trades, it is impossible to be specific. In every trade and process of manufacture the conditions are different, and none but those who understand a trade thoroughly can fully understand these conditions. For this reason the manufacturer cannot afford to wait, content with present profit, until the way to greater economy in little things is pointed out to him. He must give the matter his personal and close attention, and, profiting by the discoveries and improvements of others, as well as by his own experiences, solve the problem in his own way. Nothing will aid him more than an intelligent and careful persual of the current technical literature of his own and kindred trades, and if he will turn to account all the information he thus gains he will find that every country is contributing something each week to the growing fund of general knowledge which he can turn to his own personal profit and the good of the community. Those who follow this policy will lead the industrial progress of the next half century: those who wait, Micawber like, for "something to turn up" in the way of a great discovery or invention which shall compell a progress whether we want it or not, will find themselves falling behind in the race for success and wealth.

Precautions Against Fire in Factories and Mills.

The burning of the Granite Mills, at Fall River, Mass., is an accident which, as regards its fatality, is one of unusual horror. We have no wish to pass judgment upon the responsibility of the proprietors in advance of the official inquiry which will undoubtedly be held, but we have no hesitation in saying that the confining of fifty persons in an attic without a safe and certain means of escape, indicates either a gross carelessness of necessary precautions of safety, or a reckless disregard of human life which merits something more than a rebuke. We hope this disaster with its terrible warning will not pass unheeded. Every large workshop or factory, especially one in which women and children are employed, should have a fire escape so constructed that it will sustain any sudden weight which may be brought upon it, and which would be the last thing to fall in case of the total destruction of the building by fire. It seems that the attic of the Granite Mills had a fire escape, but it was accessible only by ladders to the skylights in the pitched roof, which had been removed and could not be found when wanted. This is too often the case in large factories, and if mill owners will not protect the lives of their operatives by providing adequate and convenient means of escape in case of fire, they should be required to do so by stringent laws prescribing heavy penalties for their violation.

It is also of the utmost importance that every mill should have its own fire service, with means of extinguishing fire always at hand. This plan has been very generally adopted, we believe, but it is seldom brought to a state of efficiency which affords any security to life or property. Every floor should have its hydrant and hose, and every man should have a certain specific duty assigned him to perform the instant an alarm of fire is sounded. Occasional drilling insures greater promptness and better discipline, beside fixing every man's duty in his mind and obviating the danger of confusion when the moment for actual service comes. Everything should be in readiness for a sudden and desperate emergency, and nothing less than an earthquake or a volcanic eruption should be accepted as an excuse for such a slaughter as that which has made the burning of the Granite Mills memorable. No great outlay of money is necessary to insure safety against sudden and complete destruction by fire, and when these precautions are neglected, manslaughter in the first degree would not be too sever a verdict to render against those with whom rests the responsibility of such neglect.

Quick Transit and Improved Terminal Facilities.

The American Society of Civil Engineers have issued the following letter to engineers and others interested in the subject of quick transit and improved terminal facilities for New York:

AMERICAN SOCIETY OF CIVIL ENGINEERS,
63 WILLIAM STREET, NEW YORK,
September 15th, 1874.

SIR—At the regular meeting held September 3d, 1874, it was—

"*Resolved*, That a committee of five members of this Society be appointed by the president, to investigate the necessary conditions of success, and to recommend plans for—

"First—The best means of rapid transit for passengers, and

"Second—The best and cheapest methods of delivering, storing and distributing goods and freight—

"in and about the city of New York; with instructions to examine plans and to receive suggestions such as parties interested in the matter may choose to offer, and to report on or before the first day of December, 1874.

"Messrs. O. Chanute, M. N. Forney, Isaac C. Buckhout, Charles K. Graham and Francis Collingwood were appointed such committee."

You will confer a favor upon the committee and the Society by furnishing whatever contribution or suggestions you may deem of value on the above subjects, or by calling attention to the sources of such information. Due credit will be given for all aid rendered to the committee.

In referring to plans proposed to accomplish these objects, it is particularly desired to ascertain accurately—

1st. The route and location proposed, and the reasons therefor.

2d. The character of structure proposed in various parts of the city.

3d. A close estimate of the cost in detail.

It is greatly preferred that all communications shall be in writing.

Please address,
G. LEVERICH, Secretary.

This is a step in the right direction. The result of the deliberations of this committee will undoubtedly be the elaboration of a plan or system of public improvements, in the practicability of which capitalists can have confidence, and for which the means necessary to carry it into execution can be raised. The obstacle in the way of quick passenger transit and the provision of better facilities for the handling and storage of merchandise in this city, has been that the schemes presented have been in the main visionary—the dreams of amateur engineers, or else "jobs" organized with a view to plundering the city treasury. Whatever plan may be offered by the Society of Civil Engineers will command the confidence and support of the capitalists, merchants and business men of the city, to whom we must look for the means to carry any plan into execution. We hope the committee will receive every assistance in their labors from merchants, as well as from engineers. The merchants know best what is wanted, and the engineers can thus base their plans upon the needs of commerce.

An Honored Guest.

Mr. Isaac Lowthian Bell, of Bell Bros., Middlesborough, England, and president of the British Iron and Steel Institute, arrived in this city on Tuesday afternoon. During his stay in the United States, which we understand will be brief, Mr. Bell will visit the principal iron producing regions. Yesterday afternoon he left for the Lehigh Valley. What his movements for the future are we are not yet informed.

This announcement will doubtless take many of our readers by surprise. It was not generally known that Mr. Bell contemplated visiting this country before 1876, when the Institute will probably hold a meeting here, but he will receive a warm welcome at the hands of the American iron trade. Such a welcome he certainly merits. His contributions to the metallurgy of iron have been of great and permanent value to the American iron trade, and in this country, as well as at home, he is accorded a high rank among the most scientific and generally intelligent of iron masters. We are informed that his visit is one of pleasure: we hope he will enjoy it. As a representative man of his country and his profession he should, and undoubtedly will, receive a cordial reception wherever he goes. Unlike many of his countrymen, he has no prejudices against this country. Years ago he saw in our vast and varied resources the promise of a future industrial greatness which should overshadow that of England and enable our manufacturers to compete with hers for the markets of the world. He is, therefore, a man who can appreciate and understand what we shall have to show him, and whose outspoken confidence in the future of this country cannot fail to stimulate the inflow of British capital, which is already seeking liberal investment of this side of the Atlantic. In his inaugural address as president of the Iron and Steel Institute, delivered on the 28th of April, 1873, Mr Bell said;

If we have to apprehend the event of a powerful rival in the iron trade, it is not, unless new coal discoveries are made, the Old World of Europe we have to fear, but the immense and undoubted powers possessed by the western hemisphere. In ores of the finest descriptions the resources of the United States are unlimited, while in coal our own wealth is, in comparison, but poverty. In many cases the relative geographical situation of these minerals is not unfavorable; in short, there is apparently but one bar to a boundless production of iron in the New World—that of human hands to manipulate it. * * * * In the matter of skill, everyone who has had the opportunity of inspecting the American ironworks concurs in reporting that their development is quite in keeping with the advantage nature has conferred upon that highly favored country.

This indicates a liberal appreciation of American resources and American enterprise, and we are sure that Mr. Bell will have no reason, from what he shall see in this country, to change the opinion he has already formed and expressed.

The Condition of the Pennsylvania Railroad Company.

The best method of restoring confidence, so heavily shaken by the late panic, is to show clearly and calmly, by the logic of facts, that such confidence was not misplaced to the degree that has generally been supposed. The first and greatest interest to suffer, and that which by its depression in time caused the greatest amount of loss to the iron trade, was the railroad interest. That in one leading instance there was no cause for any such withdrawal of confidence from railway investments, has been clearly and practically demonstrated by the report of the investigating committee appointed by the stockholders of the Pennsylvania Railroad Company at the last annual meeting. This report is the more important to the iron trade as the company named and its leased roads are among the very largest consumers of American railroad material, and represent more than eight per cent. of the total railroad mileage of the country, with over ten and a half per cent. of the total railroad capital of the United States. The report in question, just issued by the committee, forms a volume of two hundred and fifty pages, being altogether the most exhaustive, comprehensive and practical contribution to railroad literature yet attempted. To review in detail this report is impossible. It treats in practical terms of the problems of finance as connected with railway management; of the policy of location and construction of the road; of maintenance and working expenses; of freight rates and the permission of transport by private companies; of the cost of carrying freight against cost of material; of the exact and wonderful increase of efficiency in locomotive construction and management; of canal service and boat construction; of coal mining and colliery owning as an adjunct to railroads; of the policy of real estate purchases: and, in a word, forms, supposing the question at issue to be left on one side and the subject of railway management and construction alone considered, a complete treatise on the subject, amply sufficient for the guidance of the company of the future, based upon the very strongest of data, namely, those derived from practical experience. And well may this be the case, since the material upon which this report is based includes the detailed workings of 5396·6 miles of finished railroad, representing a capital of $398,267,625·22, and extending from the Hudson, at Jersey City, to Lake Michigan, at Chicago; from Lake Erie to the Ohio River, at Cincinnati; from Buffalo to Baltimore; and supplying direct transportation, development and traffic to a larger portion of the products of the soil, the forest and the mine, than any other corporation in the world. To show that no cause existed for the withdrawal of public confidence from such an aggregation of enterprises is *a fortiori* to show that no real cause has ever existed for such feeling in the country. To show that the actual value of the real and personal property of such a company is double that assumed, or which it has claimed, is to show the demands of such enterprises to the trade, and to assure the existence of the very strongest elements of national prosperity. The totals, while of heroic proportions, are in every case supplemented by details so minute that we venture to say the stockholders of no joint stock corporation were ever half so intimately acquainted with the actual condition of their investment. Thus in dealing with these figures, we can show at a glance the magnitude of the operations and the strictest accuracy of detail. Without quoting, however, the leading items, the report would be shorn of much its strength. Hence we find:

The total assets of the company to be	$178,371,718·17
Liabilities other than to stockholders.	59,416,373·09
	$118,955,405·08
Capital stock issued	68,144,475·00
Surplus value to credit of profit and loss	$50,810,930·08

Making the shares, which number 1,363,000, worth $87·28 each, or $37·28 beyond the par value.

As at once an index of the dividend paying powers of the company, and the returning prosperity of the country is given the following statement of net earnings:

First six months, 1874	$5,476,635·28
First six months, 1873	4,411,961·27
Increase in 1874	$1,064,674·01

This gives, without any improvement for the last half of this year, an increase of over two million dollars for net earnings, even in "this period of unexampled depression." As such corporations, where wisely managed, pursue the policy of securing at the outset sufficient real estate for the requirements of the future it is not surprising to find this company owning 8753·23 acres of land, valued, with buildings, depots and shops, at $18,566,622·83, much of which value is due to appreciation during the twenty-five years of ownership. This is also exclusive of any lands used for road bed purposes.

The items of machinery and tools in the various shops, which like the real estate above enumerated apply only to those of the main line, actually owned, amount to a total value of $1,270,420.

Perhaps the most interesting detail to the iron manufacturer, as dealing directly with his products, is the summary of rolling stock, which is as follows, given under the head of

EQUIPMENT.

	Number.	Value.
Freight Cars, Eight Wheeled	15,900	$8,296,575
" " Four Wheeled	1,798	320,035
Passenger Cars, including Mail, Baggage and Express	521	1,855,000
	18,219	$10,473,610

Locomotives.	Number.	Value.
Passenger Locomotives	151	$1,585,500
Freight " "	595	6,842,500
Distributing and Shifting	133	9,625,000
	879	9,625,000
Grand total value of Equipment		$20,098,600

If the experts in the trade will turn their attention to the amount of iron consumed in the construction and annually required in the maintenance of this number of cars and locomotives, all of strictly American material, some idea may be formed of the value of such a corporation as a purchaser, and of the importance of this trade to the industry at large. These are the practical deductions from such figures.

Of the value of the road bed, track, &c., it is shown that a careful estimate now made gives a total of $94,398,483·83, on which the amount charged on account as value is only $48,571,808·18, giving an increased natural value of nearly double. So much has been said of the leased lines of the Company, and the policy of absorption, that it is but fair to quote the agreeable surprise of the committee on finding that with a total annual charge for rental on these lines, including guarantees on bonds and leases, of $13,862,319·94, there was in 1874 an absolute loss as guarantee of but $280,000. This, the committee truly says, "Should allay any fears on the part of "stockholders that the liberal use of its "credit had imposed damaging liabilities" on the Company. The following interesting table, containing a condensed statement of the length, capital, receipts, expenses and net earnings of all the various systems or groups of railroads under the control of the Pennsylvania Railroad Company, including the Delaware & Raritan and Susquehanna Canals, is here appended:

Systems.	*Total miles.	Capital.	Receipts.	Expenses.	Net Earnings.
*Northern, or Fort Wayne	1,767·6	$87,597,380·67	$19,351,060·26	$11,962,704·17	$7,388,316·09
†Southern, or Pittsburgh, Cincinnati & St. Louis	1,318·0	85,859,720·52	11,990,036·83	10,184,262·43	1,184,754·40
Baltimore & Potomac	92·0	9,915,505·97	381,456·80	85,510,161·54	69·03
‡Eastern or Pennsylvania	2,816·0	214,995,112·16	51,983,330·18	16,923,158·64	$35,476,829·76
	5,993·6	$398,267,625·22	$83,084,914·00	$37,558,614·94	$45,476,829·76
Northern, or Fort Wayne		$51,316·34	$11,352·28	$7,031·42	$4,320·86
Southern, or Pittsburgh, Cincinnati & St. Louis		65,040·00	8,625·96	7,727·07	898·92
Eastern, or Pennsylvania		76,318·18	18,442·00	12,436·00	6,006·96

* The figures include returns of Indianapolis & St. Louis and Cleveland Railroads.
† The figures include returns of Vandalia Railroad.
‡ The figures include returns of Pennsylvania Canal, four hundred and eight miles long.

The Fort Wayne system has 1966 miles of single track.
The Southern system has 1504 miles of single track.
The Pennsylvania system has 3125 miles of single track, and a large proportion laid with steel rails.

Of the proportionate number of miles of road owned and operated by the Company compared to the total mileage of the country, it is stated: The whole number of miles of railroad in the United States in 1873, 70,651; whole number controlled by Pennsylvania Railroad Company, 5933·6; percentage of total controlled by Pennsylvania Railroad Company, 8·398 per cent.; total capital of railroads in the United States, $3,784,543,034; of which is controlled by Pennsylvania Railroad Company, $398,267,625·22, or 10·520 per cent.

Of these different systems, costing as above, the net earnings of 5933·6 miles of road were 6·39 per cent. on the cost. Thus it is seen that all the roads controlled by the Pennsylvania Railroad Company in 1873 earned 6·39 per cent. on their entire capital and bonded debt; that the roads east of Pittsburgh earned 7·87 per cent., and that the Pennsylvania proper, after paying interest and losses on her leased lines, earned for its stockholders 12·22 per cent.

There are several practical deductions to be drawn from these statements. The first of these is that, given such earnings for such an extended system of railways in a year the last quarter of which was in the panic, whether any such financial condition of the country should have had any real basis. The second, that with such earnings, viz., over 6 per cent. on the poorest, nearly 8 per cent. on the next best, and over 12 per cent. per annum on the very best of these systems, whether such American railway investments do not offer to the capital of the world larger interest, with better security, than any similar investments attainable. If this is not demonstrated by these figures, the argument falls. If it is, the clamor of the past year in financial circles, foreign and domestic, against railways has been unfounded and without just premises. The third, and to the iron trade the most pertinent is that, accepting the statement made on good authority, that the construction and equipment of a mile of first-class railroad requires the consumption of 150 tons of iron, and the maintenance of such road and equipment 14 per cent. of this amount annually, we have in the systems of railway before us an original consumption of 890,040 tons of iron, in construction of 5933·6 miles of road, and an annual demand for 124,605 tons of iron in maintenance and repairs.

The product of rolled iron in the United States in 1873 is given at 1,830,000 tons; the amount of iron required in this construction is over half of that product, while the annual demands in the industry for maintenance are nearly 7 per cent. of the total rolled iron product of the country. Further, the amount required here for construction was greater than the whole product of the country in 1865, while the value of the annual requirements of this system, viz., 124,605 tons, estimating one-third of it as rails and two-thirds as bar iron, at present prices, represents a trade to the rolling mills alone of $8,076,300, to say nothing of the added value of this material to car shops, locomotive works and general skilled labor. These are the lessons we would draw from an apparently uninteresting mass of figures—lessons which, if properly construed, cannot fail to restore confidence in our ability to sustain our industry. To continue, however, the statements of the committee, the purchases of coal lands by the company are shown to have been a total of 27,950 acres, costing $1,437,708·41, and now valued at $12,536,000·84, a very marked increase of value under development which has been only partial.

The question of the use of railroads by private corporations as fast freight lines has been long and frequently mooted, and their disuse, recommended, it is said, at the late railroad convention at Saratoga, forming at this moment an exciting topic in business circles. This policy, the committee thinks, is sound, and considers that "to obtain a fair proportion of competitive "freight from and to the West, the use of an "intermediate third party is indispensable, "the management being careful to obtain "the best possible remuneration from the "traffic carried."

Of the canal property of the company there are given some interesting details, and the important assertion that the history of water navigation has established beyond dispute that to compete with the present low rates of railroad freight, boats should be constructed to carry not less than 250 tons gross, and the nearer this minimum is approximated to, the greater are the chances of profit. Probably the most interesting data to railroad men, as well as among the most important to the general community, are those classified under the head of cost of working. Prefacing this by a review of the capital condition in which the road was found, and claiming that the introduction of steel rails had proved a complete success, the time having almost arrived when the substitution of some more durable and safer article than the iron rail was an absolute necessity, the statement is made that all the appurtenances to the road were favorable to the management thereof. As an evidence of all this, the following table, giving the number of engines used, the number of tons of freight moved one mile, and the cost of moving freight per mile, is given. The gradual and steady decrease in this cost is very noticeable, since the actual cost of moving freight is a steadily mooted question, but one of prime importance, especially to the iron trade, requiring, as it does, the transportation of weighty and bulky stock and product:

Year.	Tons Freight moved.	Tons One Mile.	Number of Freight Engines.	Distributing Engines.	Shifting Engines.	Average Tons Moved one Mile by each Engine, incl. Distributing and Shifting Engines.	Average Mileage of each Frt. Engine, incl. Distributing, Frt. Engines and Shifting Engines.	Rate per Ton per Mile p'd for moving Freights.
1864	2,764,576	430,627,222	225	18	13	1,581,305	17,448	0·857
1865	2,555,706	490,000,300	232	24	21	1,516,463	17,967	0·896
1866	3,156,369	518,102,161	253	25	27	1,682,302	18,988	0·87
1867	3,709,224	565,697,813	270	22	36	1,794,566	18,611	1·00
1868	4,437,884	675,775,560	278	29	38	1,968,770	19,931	1·20
1869	4,992,025	752,711,312	314	25	52	1,993,093	18,349	1·25
1870	5,437,401	835,979,692	316	26	53	2,091,088	19,326	1·54
1871	6,575,843	1,011,892,207	338	30	58	2,375,334	21,839	1·82
1872	7,844,778	1,190,144,096	401	34	63	2,389,947	22,362	2·58
1873	9,211,231	1,384,831,970	456	34	77	2,442,384	23,213	$2·87

The following deductions from this table show the commercial progress made in ten years in railway workings as well as the improvement in locomotive construction and management:

In 1864 it required 266 locomotives to move 420,627,222 tons of freight one mile, giving, as the average of tons moved by each engine, 1,581,305. In 1873, 567 locomotives moved 1,384,831,970 tons one mile; averaging number of tons moved one mile by each engine, 2,442,384 tons, or a gain of 861,079 tons moved one mile, or 54 per cent. increased service to each engine. The average mileage of each engine in 1863 was 17,448, and in 1873, 23,213 miles, or an increase of 33 per cent., while the cost of moving one ton one mile was reduced from 1·87 cents in 1864 to ·857 cents in 1873, a reduction of nearly 60 per cent. These are records of direct progress, which have an intensely practical bearing, and interest all classes.

Of the results accomplished by the company they represent, the committee is justly proud. They show that by its aid to Western lines it has given an impetus to manufacturing interests. "By the opening of the gas and soft coal regions of Pennsylvania, the development of the iron and steel interests, the utilization of remote forests, the immense production of oil, it has made a home market for all these products along its lines, and is gathering into the State a rapidly increasing, sturdy and energetic population." With these benefits it has paid its stockholders from 1853 to 1873, twenty years, an average of 9·9 per cent., the total dividends to January, 1874, having been 234 per cent. It is not to be supposed that the report is without condemnation. It closely scrutinizes some acts of policy, condemns others, and strictly forbids in the future still others. It offers a series of resolutions restricting the powers of directors, enumerating their duties and those of the principal officers. With increased safeguards for the future, it surrounds the workings of the trust, and lays before the stockholder of the most ordinary intelligence a full and careful resume of the actual condition and amount of the property in which he owns a share. Although necessarily long, this article can pretend to give nothing but a condensation of the report. The effect of this report upon the business community of the world must be marked. It shows to the capitalist abroad that American railways, of the best class, are well managed and profitable investments. It teaches the manufacturer at home that the maximum of efficiency with the minimum of cost has almost been reached in moving his raw material and products. It encourages the financier to greater faith in the permanency and profit of American enterprises. It warns the engineer of the demands of the present and future upon his acquirements. It brings home to the business community the marvelous increase of internal commerce, which has never halted, even during trade crisis. And, lastly, it does, or should, lay clear to the iron trade that with such a showing made by the great artery of commercial circulation, no possibly prolonged depression of the trade can exist, while the demands of the future upon the industry will be five hundred fold those of the past.

Science and Strikes.

An interesting letter from London, describing the part taken by the British Association for the Advancement of Science in terminating the strike in the linen factories of Belfast, is exceedingly suggestive. Strikes are in their essential nature unscientific. On the one hand stand the owners with their machinery and materials; on the other the workmen with empty stomachs and idle hands. The men want to work; the employers want them to be working. The difficulties which the forces of nature present have been overcome, and the obstacle encountered is not in the process of manufacture. The channels of trade have been opened and the market is ready with its demand. Nothing needs adjustment but a question of wages. If it were not a matter of such frequent experience, it would seem incredible that such a question, which ought to be the easiest of all to adjust, should block the wheels of prosperity for weeks at a time, wasting vast sums of money and bringing want and desolation to a thousand homes.

Some recognition of the utterly unphilosophical characteristics of their strike seems to have dawned upon employers and employed when they brought the matter before the British Association. The workmen came to its sessions by special, though not strictly official, invitation. Essays of a purely scientific character upon the relations of labor and capital had been read before the meeting. The workmen were then invited to come forward and state their grievances. They did so. Very willing would they have been to make that body of scientific men the arbiters of the disagreement, but this office the Association would not undertake.

The mill owners were also represented, and their side of the case was put before the meeting. Then for the first time, apparently, each side realized the weakness, not to say the absurdity, of its own position, and the force of the arguments on the other side. Men who scarcely an hour before had been bitterly opposed and hopeless of reconciliation, saw in a moment the way to compromise. The adjustment of wages was a mere matter of detail, easily arranged at a conference the following morning; and on the next day the black plumes of smoke were rising from the chimneys of the linen mills of Belfast, after seven weeks of idleness and the loss of a million dollars.

A New Source of Ore Supply.

The Reading (Pa.) *Eagle* says:

At this time, when the furnace men and iron operators of Pennsylvania find profits in trade reduced down to so narrow a margin, it is essentially necessary that they make advancements in exact proportion as their former prosperity has declined. The laws of trade will clearly point the remedy; and to the proper consideration of the result of such examination we have but to review the great and the leading sources of iron supply in the country, and consider from which of these sources the iron men of Pennsylvania, particularly of the Eastern section, can be supplied at the cheapest and best rates.

The Missouri iron mountains have of late years been supplying the principal ores to about 140 furnaces between the Alleghenys and the Mississippi River. The Lake Superior iron ore region has also been furnishing some of the same furnaces with about 300,000 tons of ore per year. Pittsburgh and Western Pennsylvania furnaces have been procuring their ores from these localities at a cost last year from $14 to $15 per ton delivered. Iron ores in Pennsylvania are scattered, and in no place found so abundant as at Cornwall, Lebanon county, this State, where several mountains covering some 400 acres of solid iron ore can be seen, and which are valued at many millions of dollars, and princely fortunes are realized from the yearly sale of these ores.

The iron ores from Lake Champlain are rich and make a good quality of iron, but the expense is too great to procure them for Pennsylvania furnace use. The ores from New York and New Jersey are the principal foreign ores that pay to use among the local ores in this State, which are principally mined in the Cumberland, Schuylkill and Lehigh valleys. The ores run in nests of too small quantities to expend a sufficient amount for fixtures and railroad facilities to transport the ores cheap to the furnaces. So far as Eastern Pennsylvania is concerned we have no superior advantage over those in Western Pennsylvania that have no ores at all, and are compelled to use material from 500 to 800 miles off; and, with all this apparent disadvantage they glut our markets with their irons at a figure far cheaper than we can sell at.

The iron master in this section of the State must soon awake from his long sleep and examine carefully into his situation before it is too late. There are yet mountains of untold millions of tons of superior iron ore heaved up hundreds of feet above water level that can be bought for a mere song. It is nearest to our grasp and can be mined and sent to our valley at a cost of less than three dollars a ton, that will make a quality of iron and steel equal to any in the world. Let some of those that are engaged in the iron business visit the mountains of Frederick, Hampshire, Hardy, Pendleton, Augusta and Rockbridge counties, Virginia, and they will soon find a trail to the lost art in competing with our Western neighbors. These are solid facts for the consideration of our furnace men, and the sooner they are earnestly inquired into the better for the entire State.

The British Tin Trade.

Mr. Robert Hunt, F.R.S., read an interesting paper on the state of tin production and the tin trade before a recent meeting of the Miners' Association of Cornwall and Devon. The exports of tin of British production in 1873 and the two previous years were, according to the Board of Trade returns, as follows: 1871, 114,201 cwts.; 1872, 113,871 cwts.; 1873, 115,946 cwts. The exports of foreign and colonial production were—1871, 41,196 cwts.; 1872, 48,634 cwts.; 1873, 28,869 cwts. Of the two combined there was thus an increased export on 1872 over 1871 of 355 tons, and a decrease of 1873 over 1872 of 874 tons. It must be remembered that in addition to the tin from Banca and Billiton, a new tin producing district of great value was being opened out in Malacca Peninsula, and that an English company was commencing operations in a large and promising district of Siam. The quantities of tin received from Australia had largely increased, and there was no prospect of any falling off in the supply, while a district in Tasmania was now claiming attention, which Mr. Hunt had been assured by Mr. Gould, of the South Australian Geological Survey, far exceeded that of Queensland in productiveness. The only course open to the British miner for checking the importation of foreign and colonial tin appeared to be the exercise of the strictest economy in every branch of production. Into the mines labor-saving machinery must be introduced, and on the dressing floors every advantage must be taken of such scientific knowledge as was directly applicable to the separation of bodies of different specific gravity from the ore. Mr. Hunt appended a brief notice of the condition of tin mining in Southwestern England during the past 10 years. In 1864 the number of tin mines was 174, producing 13,985 tons of black tin, at an average price of £60. 17/6. In 1873 there were 213 mines, producing 14,884 tons, average price £78. 1/. In 1868 there was only 109 mines, producing 11,584 tons. The lowest price for the period was £48. 10/9 per ton, in 1866. The total importations of tin in 1872 were 1024 tons of ore and 8342 tons of metal and regulus. In 1873, 5612 tons of ore and 7791 tons of metal and regulus. The total production of British, foreign and colonial tin in 1872 was 18,544 tons; in 1873, 21,193 tons, of which 9752 tons were British, which, in 1872, figured for 9560 tons. It was suggested that it would have been very valuable if returns could have been given for the first half of 1874, so as to show the effect of the low standards on the importation.

The Henderson Process at the Ulster Iron Works.—We understand that the firm of Messrs. Tuckerman, Mulligan & Co., proprietors of the Ulster Iron Works, Saugerties, N. Y., have taken a license from Mr. James Henderson, of this city, to work his patent process for the manufacture of pure wrought iron from common pig. This may be considered ample confirmation of all we have said in these columns respecting the value of the Henderson process. Mr. Mulligan is one of the most intelligent, practical and, at the same time, conservative, of American iron masters. The process was exhaustively tested at the Ulster Works some time ago, with entirely satisfactory results.

President Sidney Dillon and Jay Gould, of the Union Pacific Railroad, started for a tour of inspection over the Union Pacific and connecting roads, on Saturday evening. They will probably go as far as San Francisco, where they will remain several days. One of the objects of their journey will be to facilitate passenger traffic over the Union Pacific by increasing the speed of the trains, which now run at the rate of fifteen miles an hour. Instead of making a connection with the Union Pacific transfer at Council Bluffs, it is proposed to run a through car from Chicago, abolishing this transfer as at present conducted. The speed will be increased so that a day will be saved between Chicago and Ogden, Utah.

Some time ago, while Vice President Huntington, of the Central Pacific Railroad, was on a trip to California, he signed contracts for the tunneling of the Sierra Nevada Mountains at a point near Truckee, Cal. The tunnel will be several miles long, will cost $2,000,000, and will preclude the necessity which exists at present of making a steep ascent of more than 1000 feet at a very difficult part of the road. When this shall be completed the snow-sheds, which now form so important a feature in the equipment of the road, will be no longer necessary. Several thousand tons of steel rails have been sent to the line of the road and will replace the iron rails as fast as the latter are worn out.

Moisic Iron.

The following information about the peculiar kind of Canadian iron, the name of which heads this article, is furnished us for publication by Wm. A. Sweet, Esq., of Syracuse, New York :

This iron is found at the mouth of the Moisic River, in the Province of Quebec, or the north side of the Gulf of St. Lawrence. It seems to be driven into this small bay by the action of the incoming tide and the outgoing current of the river. It is a very fine black sand, by analysis found to be one-half magnetic. It is mixed with about 25 per cent. of quartz sand, and contains garnets, and, as some assert, diamonds. The grains are of different colors when placed under a glass, some being very blue, others green, and many amber-colored.

There are small beds of similar ore on Lake Champlain and at the west end of Lake Superior. The analysis of Moisic ore, as made by M. Poinsat, is as follows :

Oxide of magnetic iron	51·12
Protoxide of iron	34·60
Titanic acid	11·27
Silica	3·01
	100·00
Metallic iron	63·83

The above analysis shows this sand to be similar to the New Zealand sand, of which some is used in England. The Moisic ore found in the bay at San Francisco, Quebec, is very clean, and lies about three feet from the surface, which is ordinary ocean beach sand. Many experiments were made in 1866 and '67 by Sweet's Manufacturing Company, of Syracuse, to test the quality of this ore as a steel iron. An experiment by Wood Brothers, of Wood's Falls, New York, in the Catalan forge, finally resulted in perfect success. A forge af eight fires was then erected at the bed, and work commenced in 1867. Through mismanagement there was some loss of money, and success was but indifferent. The iron now produced is of very superior quality and makes the finest steel. It analyzes as follows, compared with the purest Swedish and Russian charcoal irons :

	Moisic	Swedish.			Russian.	
		No. 1.	No. 2.	No. 3.	No. 1.	No. 2.
Silicon	·010	·115	·028	·056	·062	trace.
Carbon	·160	·097	·054	·087	·272	·340
Manganese	trace.	.....	trace.	.....	·080	trace.
Sulphur	trace.	·220	·055	·032	·234	·006
Phosphorus	abs'nt	·084	trace.	·005	.....	.....
Iron (by difference)	99·821	99·544	99·863	99·220	99·412	99·594
Arsenic	none.	trace.	.....	trace.	trace.	trace.
	100·000	100·000	100·000	100·000	100·000	100·000

Sweet's Manufacturing Company, of which Wm. A. Sweet is president, are negotiating to take the product of the forge, and will convert it into fine cast tool steel and spring steel.—*Bulletin of the Iron and Steel Association.*

Purification of Water by Contact with Iron.

Almost all large water pipes are of iron, as tax payers well know when they are called upon to replace the old rusty mains with new ones every few years. But, according to good chemical authority, the iron has an advantage with its defects. Professor Medlock proves by analysis, several years ago, that iron by its action on nitrogenous organic matter produces nitrous acid, which Muspratt called "Nature's scavenger." The latter chemist found, as a general result, that, by allowing water to be in contact with a large surface of iron, in about 48 hours every trace of organic matter was either destroyed or rendered insoluble, in which state it could be purified effectually by filteration. Medlock found, on examining the water at Amsterdam, which smelt and tasted badly, that the sediment charred on ignition, and was almost consumed, showing that it consisted of organic matter. He also found that instead of taking iron from the service pipes, the water before entering those and an iron reservoir contain nearly half a grain of iron to the gallon; while in the water issuing from the pipes, there was only an unweighable trace. Before entering the reservoir, the water holding iron in solution formed no deposits; while the water coming from the pipes, and freed from iron gave organic sediment above mentioned. He then made analysis of water brought in contact with iron, and water not in contact, with the result that the water which had not touched iron contained 2-10 grains of organic matter, and 0-96 grain iron; the other gave only a slight trace of both, showing plainly that the organic matter in the water was either decomposed or thrown down by contact with iron; and this water, when filtered, was found to be clear, of good taste, with no smell, and free from organic matter. It is not stated in what shape the iron was held in solution, but it was probably in that of carbonate, the usual iron salt of springs, since carbonic acid is so common in water in general. These facts may be made useful in certain places and ways in effecting the purification of water rendered injurious and offensive by the presence of organic substances. And if the interiors of iron mains could only be kept from rusting by a swabbing with nitric acid, or by a paint of charcoal and plumbago, so much the cheaper.

Syrian Pottery.—When Syria was under the vigorous Egyptian rule from 1832 to 1841, Ibrahim Pasha, the Governor (father of the present Viceroy of Egypt), saw the necessity of protecting the town of Beirut from the inroads of the drifting sandhills by which it was almost surrounded. He did all in his power to encourage the people to plant long rooted grasses and bushes over the sandy promontory, and he especially endeavored to extend the plantation of pine trees. To effect this, he granted to the bakers and potters of Beirut the privilege of cutting the lower branches of the pine trees every year on condition that they would plant yearly a certain number of young trees. This excellent rule is still in force, and consequently the now beautiful pine forest is spreading vigorously, binding and enriching the sandy soil. The fruit of the pine cone, called *snobar* in Arabic, is very nutritious. A gazelle or a lamb stuffed with pine seeds and raisins is a favorite dish for a feast day in Syria. The stacks of fragrant pine branches formed a welcome shade for the tired workman from the furnaces; and, unlike the fuel used at the Salihiyeh (cake of dried dung), added greatly to the picturesque appearance of the potteries. A little boy who, at my request, brought me a clay cupful of sweet water, told me that he would show me where the best water jars were made. He led me to the workshop of his father. It was formed of roughly hewn stone, built up without mortar or plaster of any kind; the interstices were filled up with small stones. The roof was made of pine planks and beams, supported by the stems of pine trees. The planks over the wide doorway were upheld in the middle by a pine post, with a block of stone for a capital. The floor was of red sand, mixed with clay. A man was at work at a wooden bench, and my little guide approached him, saying, "Oh, my father, a lady from England has come to see the work of your hands!" The potter did not speak or look up from his work until he had completed the jar which he was making, then he welcomed me courteously and quickly resumed his work.—*Art Journal.*

A new and intensely white light has lately been invented and exhibited by Mr. Wm. Day, of Ohio. A thin ribbon of carbon is suspended between two platinum poles, and covered by a globe containing dry carbonic acid gas. The ribbon receives an electric current from a battery, and while in the atmosphere of the gas becomes brilliantly incandescent. The carbon is not consumed, and the light is said to be perfectly constant. The method was invented by Professor Osborn, of Miami University, who at first thought it necessary to use very thin strips of carbon, but the light is now produced with much larger ribbons and with little combustion. The heat generated has never, as yet, broken the small glass globe containing the ribbon. This light being constant, and not requiring the combustion of carbon, may prove much more useful to scientific lecturers than the ordinary electric or oxyhydrogen lights, both of which are troublesome to handle.

Trade Report.

Office of THE IRON AGE,
WEDNESDAY EVENING, Sept. 23, 1874.

The past week has witnessed a fair average activity in Wall street, but closes heavy, with a downward tendency of prices, even in the case of securities which have been steadily advancing for two months past. This depression is but temporary, and of a speculative character. Money continues very easy at 2 @ 3 per cent., call loans, and 5 @ 7½ per cent. as the discount rate on prime commercial paper.

The gold market is without important feature. The range of the premium to-day has been between 109¾ and 109⅝. Owing to the crowded state of our columns we omit the usual table showing the daily range of the premium, which has fluctuated within narrow limits.

Government bonds are firm here and in England, with a present upward tendency. Durable railway mortgages are strong and in good investment demand.

The course of the stock market we have outlined above. The principal dealings have been in Erie, Pacific Mail, Rock Island, Lake Shore, St. Paul, Wabash and N. Y. Central.

The movements in foreign trade for the week are shown as follows:

IMPORTS.

	1872.	1873.	1874.
Total for week..	$9,071,599	$6,773,846	$6,669,952
Prev. reported	317,120,573	290,535,362	288,767,563
Since Jan. 1....	$326,192,152	$297,309,208	$295,437,515

Included in the imports of general merchandise for the week are:

	Quant.	Value.
Brass goods	24	$3,262
Bronzes	51	12,884
Chains and anchors	67	3,320
Copper		1,315
Cutlery	63	22,837
Guns	93	20,463
Hardware	181	13,852
Iron, pig, tons	100	2,559
Iron sheet, tons	66	11,736
Railroad bars	9,238	160,489
Iron cotton ties	4,000	6,078
Iron, other, tons	244	24,663
Lead pigs	4,574	27,135
Metal goods	143	19,975
Needles	7	3,535
Platina	1	2,573
Per. caps	14	2,760
Saddlery	3	422
Steel	1,699	18,972
Silverware	21	258
Tin, boxes	25,525	202,410
Tin, slabs, 1227 lbs., 119,145		24,883
Wire	862	14,581

EXPORTS EXCLUSIVE OF SPECIE.

	1872.	1873.	1874.
For the week...	$5,283,128	$6,501,318	$4,354,724
Prev. reported..	156,503,554	202,771,969	238,359,021
Since Jan 1....	$161,786,682	$208,673,287	$242,713,745

EXPORTS OF SPECIE.

Total for the week	$400,184
Previously reported	41,439,259
Total since January 1, 1874	$41,839,443

Government bonds closed as follows:

	Bid.	Asked.
U. S. Currency 6's	117¾	117¾
U. S. 6s 1881. reg	117	117½
U. S. 6s. 1881, con	117¾	118¾
U. S. 1862. 5-20 reg	112¾	113¾
U. S. 5-20 1862. con	112½	113
U. S. 5-20 1864. reg.	114	114¼
U. S. 5-20 1864, con.	115	115¼
U. S. 5-20 1865, reg.	114¾	115
U. S. 5-20 1865. con.	115¾	116¼
U. S. 5-20 1865. reg. new	114¾	115¾
U. S. 5-20 1865, con.	115¾	115¾
U. S. 5-20 1867. reg.	115¾	116¾
U. S. 5-20 1867, con.	116¾	117¾
U. S. 5-20 1868. reg.	116¾	116¾
U. S. 5-20 1868. con	116¾	117¾
U. S. 10-40 reg	110¾	110¾
U. S. 10-40 con	111¾	111¾
U. S. 5s. 1881, reg.	111¾	112
U. S. 5s, 1881, con	111¾	112

The following were the highest and lowest prices of stocks to-day:

	Highest.	Lowest.
N. Y. Cen. & Hudson Consolidated	101¾	101¾
Lake Shore	77¾	76¾
Rock Island	103¾	102¾
New Jersey Central	106	106
Del., Lack. & Western	109¾	109¾
Wabash	32¾	32¾
Harlem	128½	128
Western Union Telegraph	78¾	78¼
Northwestern	38¾	37¾
" Preferred	56	55½
Milwaukee & St. Paul	34¾	33¾
" Pref	53	52¾
Panama	115	115
Pacific M'l	48¾	47¾
Erie	37¾	36
Ohio & Mississippi	26¾	25¾
Union Pacific	36¾	35¾
C. C. & Ind. Central	14¼	13
At. & Pacific pref	14¾	13¾
Hannibal & St. Joseph	27¾	27
Quicksilver	33¼	32¼
Maryland Coal	19¾	19¾
United States Express	64¾	64¾

GENERAL HARDWARE.

We are not able to report such a business as we ought to have at this season, though there seems to be some improvement over last week. It must be remembered, however, as we have more than once noticed, that it is now very easy for dealers in any part of the country to get goods in small quantities as they want them, and it is certain that a very large proportion of the houses that have bought already will have to send in second orders before the season is over.

In one table of quotations on the 26th page, last week, we made an annoying typographical error, printing first quality Augers and Bits discount 45, 10 and 10 per cent. instead of 25, 10 and 10, as it should have been. This can not have mislead many persons, however, as the discount on second quality was correctly printed 25, 10, 10 and 5 per cent.

A meeting of the creditors of Rasheoe, Miller & Co., of St. Louis, was held to-day at the Astor House, in this city. None of the firm were present, but a telegram was received asking a postponement of action for ten days, to enable them to make a proposition. The report of the committee appointed to investigate their affairs had produced such an effect, however, that this request was not seriously considered, but, on the other hand, a committee was appointed to throw the concern into bankruptcy as soon as it could possibly be done. It is the feeling here that there has been a great deal too much easy acceptance of the terms proposed by insolvent concerns. It is all very well to treat liberally such houses as have deserved the confidence and sympathy of the trade, but it will, in the long run, be much to the interest of all if jobbers and manufacturers would insist on throwing all others into bankruptcy.

In House Furnishing and Tinners' goods there is no change to note in prices, and a very fair trade seems to be doing.

The following notices have been issued as a circular by the Russell & Erwin Mfg. Co.:

NOTICE.

SIR: We have this day contracted with the Russell & Erwin Manufacturing Company for the exclusive sale in their own name, and on their own account, of all goods manufactured by us; and we confidently refer all our friends and the trade generally to them, when in want of any goods in our line.

We shall devote special attention to the improvement of the quality and finish of our goods.

The early settlement of all outstanding accounts, that we may close our books, will specially oblige us.

Very respectfully yours,
DOUGLASS MANUFACTURING CO.
E. E. FLINT, Secretary.
M. J. WOODRUFF, President.
NEW YORK, September 21, 1874.

In accordance with the preceding notice, we have this day taken the exclusive sale of all goods manufactured by the Douglass Manufacturing Company, and they will be sold by us at lowest market rates, from our warehouses in New York, Philadelphia and New Britain.

We confidently recommend these goods as fully equal in quality and finish to any similar goods in the market; and we solicit the continued patronage of all old customers on these goods, and a fair trial of them from those who have not heretofore been selling them.

Respectfully yours,
RUSSELL & ERWIN MANUFACTURING CO.
NEW YORK, September 21, 1874.

Sargent & Co. will shortly issue the following circular, dated the 21st inst.:

"Being determined to push off Apple Parers, we are offering the balance of our stock of the original Turn Table, and only satisfactory, Apple Parers at $6·75 per dozen, less 10 per cent. discount for prompt cash. We do not guarantee to sell at above low price after stock on hand is exhausted; therefore order promptly. SARGENT & CO."

Sargent & Co. have also reduced the price on Stebbins' Genuine Molasses Gates to discount 65 and 10 per cent.

The following letter, which fully explains itself, has been furnished us for publication:

NEW YORK, Sept. 18, 1874.

To The Editor of The Iron Age—As an item of interest to the trade, we are gratified to announce that the Livingston & Cheritree Mfg. Co., of Johnstown, N. Y., have succeeded in selling all their real estate, factory, machinery and manufactured stock on hand. The exclusive right hereafter to manufacture and to sell (or authorize others to do so), of the Patent Kitchen, Butcher Bow and Braced Wood Saws, (with extension of patent of the latter from this date), rests solely with the original patentee and present owner, William H. Livingston. Arrangements are being perfected to continue the manufacture of these goods under new and better auspices.

T. F. CHERITREE & Co.,
113 Chamber and 95 Reade sts.,

Sole agents in the United States for the manufacture of Livingston's Patent Saws.

P. S.—We continue as heretofore all our specialties, including the present manufactured stock of Saws; also Hanly's Skeins and Boxes, Whiffletree Hooks, Rich Brothers American Bronze Goods, &c., &c., which we offer same as other duly authorized agents.

T. F. C. & Co.

The list prices of Wilton's Cattle Leaders have been slightly advanced, being now, No. 1, small, $2·80; No. 2, large, $3.

Nails are still quoted $3·75, for some brands and $3·85, for small orders. There would, however, be little if any difficulty in placing an order for 500 kegs, or even a car load, at $3·65. The stock is even lighter than it has been, and there has been difficulty from this cause in filling orders. We believe that stocks are considerably broken all through the East.

In Chains, Anvils and Heavy Imported Hardware there seems no new feature worthy of notice. We continue all our quotations without change. Reports a short time ago from England indicated great firmness in the prices for Chain, and an advance was looked on as not unlikely; but it has not occurred.

Hermann Boker & Co. have taken the agency for one of the largest German Wire Cloth manufacturers, and will carry a full stock of all the leading sizes. No. 13 is now quoted 5 cents per square foot.

Charles Peace, agent for Joseph Rodgers & Sons, Sheffield, has furnished us the following new Sterling list prices of some of their Knives, which, like their other goods, are still subject to the advance of 10 per cent.:

12820	10/	12829	12/
12831	10/	12840	14/6
12832	11/	12831	12/
12823	11/3	12832	12/
12824	11/3	12833	15/9
12825	12/	21500	10/
12836	10/9	21501	10/9
12837	10/9	21502	14/6
12838	12/6	21503	12/

Van Wagoner & Williams are introducing a new Door Spring, which they style the "Gem." The following are the prices:

No. 1 large	per dozen, $4·00
No. 2 medium	" 3·50
No. 3 small	" 3·00

An illustration of this Spring will be found in their advertisement on our last page.

E. M. Boynton has handed us the following statement of his prices:

Lightning Cross Cut, $1 per ft	dis 40 %
" One Man Saws, $1 per ft.	dis 40 %
" Buck Saws x bar, $15 per doz.	dis 30&5 %
" Billet Webs, $10 per doz	dis 30&5 %
" Dr g Saws	dis 40 %
" Hand Saws	dis 40 %
Common Tooth, Circular, Mill, Hand and Panel	dis 15&5 %

Our readers are not likely to overlook the advertisement on our ninth page of the Hopkins & Dickinson Mfg. Co. This company are now manufacturing a large and very handsome line of Real Bronze Hardware, embracing Locks, Knobs, Butts, and all other Door and Window Trimmings. Their illustrated catalogue, lately issued, is a beautiful production, and the cuts of their various manufactures are very fine, being all, we believe, full size, and illustrating a very complete assortment of goods in this line. The designs are particularly artistic and attractive.

We invite the attention of the trade to the advertisement, among our "special notices," of Bissell & Co.'s Hardware trade sale, to take place on Sept. 29th and 30th. It is expected that a large variety of goods will be offered at their sale, and a numerous attendance is looked for.

The Excelsior Works, Empire China Works, French China Works, and East Morrisania China Works have adopted the following price list of Porcelain Hardware Trimmings, to take effect Sept. 15th. In their circular accompanying the new price list they call attention to the fact that although porcelain goods have fallen over 50 per cent. in price during the last three or four years, there has not been a corresponding reduction in labor, material nor any of the contingent expenses incurred in producing goods; and they say that this difference is clearly so great that this branch of industry will inevitably be destroyed unless a better comparison is observed. They say that the new prices are simply fair and remunerative, and make allowance for recent reductions in the cost of production. We believe the advance in prices is about 30 per cent. from the late low prices. The circular concludes with the following paragraph: "It is also hereby mutually agreed that we will not sell any of our goods to any jobber or dealer except at an advance of 15 per cent. or more above the prices at which we sell to manufacturers, as the practice of selling alike to all has mainly been the means of bringing prices to their present ruinous condition." If this advance is maintained, the effect on many Hardware articles will be considerable.

PRICE LIST OF PORCELAIN HARDWARE TRIMMINGS.

Door Knob Tops, 2½ inch	per thousand, $60 00
" " All sizes under 2½ inch	" 30·00
Door Knob Tops, all sizes under 2½ inch, 2d qual	" 20·00
Door Knob Roses, all sizes under 2½ inch	" 20·00
Bell Pull Roses	per hundred, 3·00
Escutcheons, Poppy Drops only, regular size	per thousand, 17·50
Escutcheons, Poppy Drops only, small size	" 17·50
Escutcheons, Porcelain Bases for Poppy Drops	" 17·50

Plate Escutcheons.

No. 0, ½ Key Hole	per thousand, 17·50
No. 1, ¾ "	" 17·50
No. 2, ⅞ "	" 17·50
No. 3, 1 "	" 20·00
No. 4, 1⅛ "	" 20·00
Night Key Escutcheons	" 17·50
Scalps or Fronts, for Picture Nail Heads, &c	per gross, 0·30
Front Door Escutch's, with drop, per doz. $2·25, net	
Shutter Knob Tops, with hole through, for Loose Screws.	
⅝ and ¾ inch	per thousand, $11·00
1 inch	" 12·00
1⅛ "	" 13·00
1⅜ "	" 16·00
1⅝ "	" 20·00
1¾ "	" 23·00
2 "	" 28·00
2¼ "	" 34·00
Small Knobs for Sash Fasteners, Latches, &c., ⅝ and ¾ inch	" 11·00
Small Knobs for Sash Fasteners, Latches, &c., 1 inch	" 12·00
Small Knobs for Sash Fasteners, Latches, &c., 1⅛ inch	" 13·00

Charles E. Little, 59 Fulton street, has handed us the following new price list of Coachmakers' Tools, from which a discount of 15 per cent. is taken.

	Each.
Drawing Knives, ¾, ⅞, 1, 1¼, 1½, 1¾ wide, Plain or Bevel Back, 6 inch	$1·13
" " " 7 "	1 25
" " " 8 "	1·38
" " " 9 "	1·50
" " " 10 "	1·63
Single Blade Routing Knives	2·00
Double " " "	3·00
Extra Blades, Chisel and Gouge, ¾ to 2 in., for the above Single Routers, to screw on	Each, 1·25
Rabbit Knives, 2½ Blades, 4 inch sweep	2·50
Rounding Knives, 10 inch Blade	2·50
Plug Cutter, ⅜ to ⅝	0·50
Spoke Trimmers, 2 inches	1·25
" " 3 "	1·75
Hub Plane	2·50
	Per ¼ inch.
Hub Reamers, with gimlet point and screw to 20 in. in length of pod	$1·40
Hub Reamers, with gimlet point and screw to 22 in. in length of pod	1 50
Hub Reamers, with gimlet point and screw to 24 in. length of pod	1·75
Hub Reamers, without gimlet point and screw to 18 in. length of pod	1·00
Hub Reamers, without gimlet point and screw to 24 in length of pod	1·25
Hub Augers, Solid Cast Steel to 14 inches in length of pod	0·75
Dole Silver and Fitch's Patent Hub,	Each.
Boxing Machines, No. 1	22·50
" " " 2	27·00
" " " 3	30·00
Boring Machines with Bits	10·50
" " without Bits	7 50
Jarvis	3·50
Single or Middle Router	1·75
Single Router with guards, right and left	2·50
" to cut both ways	2·50
Door Router, plated	2·50
Glass Frame Router	2·50
Double Routers	6·00
" deep panel	7·50
Fluting Tools	2·50
Beading Tools, ¼, ⅜, ½, ⅝ inch	2·50
Centre Beading Tools, with guard	2·50
Corner " "	2·50
" " extra irons	0·38
Bead and Cut Off	per pair, 2·50
Hob Tools	3·00
Boxing Tools	1·00
Rounding up Tools	2·50
T Planes	1·50
" 5 in a set	6·00
" " Dutch Pattern	7·50
Tooth Planes	1·25
Whip Plane, steel face	1·72
Rabbit Planes, single	1·25
Door Planes	2·50
Compass Planes	3·25
Roof Molding Planes	2·50
Match Planes	2·50
Halving Planes, all sizes	1·25
Convex Smooth Planes	2·00
Concave " "	2·00
Bailey' Patent Adjustable Circular Plane, Convex and Concave	5·00
Smooth Planes, Double Iron	1·50
Jack " "	1·75
Fore " "	3·00
Hollow Auger, ¾ inch	1·00
" ⅞ "	1·00
" ⅞ "	1·25
" ⅞ "	1·37
" ⅞ "	1·50
" 1 "	1·62
" 1⅛ "	1·75
Hollow Augers, Stearns' Patent, cutting from ⅜ to 1 inch	4·00
Hollow Augers, Bonney's Patent, cutting from ⅜ to 1 inch	4·00
Hollow Augers, Ives' Patent Expansive, cutting from ⅜ to 1⅜ inch, without bits	4·50
Hollow Augers, Ives' Patent Expansive, with Ives' Patent Bits, assorted, from ⅜ to 1⅜ inch	12·00

The Emmet Hammer Co. have issued the following sheet of discounts and prices for their goods, referring to their new illustrated catalogue and price list:

Machinists' Hammers	dis 25 %
Blacksmiths' Hand Hammers	25 %
Brick Hammers	25 %
Farriers' Turning and Claw Hammers	25 %
" Pincers	25 %
Blacksmiths' Tongs	25 %
Rail Tongs	net
Napping Hammers	per lb., 30c.
Blacksmiths' Hatchers, not handled	" 30c.
" " Sledges	" 25c.
Miners' Sledges, over 5 lbs	" 25c.
" " under 5 lbs	" 30c.
Masons' Stone Hammers, over 5 lbs	" 25c.
" " " under 5 lbs	" 30c.
Quarry Sledges	" 25c.
Macadamizing Hammers	" 30c.
Boiler Hammers	" 50c.
Flogging	" 30c.
Coal Mauls	" 25c.
Boat "	" 30c.
Railroad Mauls	" 25c.
Chisels, best quality	" 33c.
Chisels, second quality	" 27c.
Coopers' Hammers	" 35c.
" Drivers	" 30c.
Paving Hammers	each, $2·25
Farriers' Sledges	per lb., 25c.
Blacksmiths' Tools	" 33c.
Crowbars	special

Steel-Faced Hammers.

Blacksmiths' Sledges, over 5 lbs	per lb., 14c.
Striking Hammers, " 5 "	" 14c.
" " " under 5 lbs	" 18c.
Masons' Stone Hammers, over 5 lbs	" 14c.
" " " under 5 lbs	" 18c.
Boat Mauls	" 18c.
Railroad Mauls	" 14c.
Crowbars, (steel pointed)	special

We have been favored by J. Clark Wilson & Co., with an advance copy of their new Price List and Illustrated Catalogue of Hardware. This is a large and handsome volume of 428 pages, of which the greater part is taken up with the goods for which they are agents, the last hundred pages being devoted to a general assortment of miscellaneous Hardware. The whole forms a very compact, complete and well arranged catalogue of General Hardware. The book is prefaced by the following circular:

We take pleasure in presenting to our friends our Illustrated Catalogue and Price List with Discount Sheet, to which we invite attention.

It will be noticed that we are agents for many prominent manufacturers whose products are too well known to need comment here. We are prepared to fill all orders for their goods, from our stock, at their prices.

Our catalogue represents but a limited portion of our assortment of American and Foreign Hardware, and if our friends are in want of any article not therein, they can order of us and we will furnish it at the lowest market price.

The following will be observed:

1. We shall fill all orders promptly from stock so far as we can, and will ship balance, unless countermanded, as soon thereafter as possible.

2. Goods sent to us to be packed will receive our careful attention, but we will not assume any responsibility against damage or loss.

3. Prices are subject to change without notice, and all orders will be filled at lowest prices ruling at time of shipment.

4. All goods at risk of purchaser after shipment.

5. Our invoices are made at net cash prices—thirty days; but to induce prompt payment we offer a discount of 1½ per cent., provided remittance is received within ten days from date of invoice.

6. We make no allowance for exchange.

7. Remittances sent by express must be prepaid.

8. We assume no risk on money sent by mail.

Among features of interest in this book we notice a comparative list of the Stephens, Stanley, Standard, Hubbard and Chapin Rules; a price list of Files from $5 to $10 to the £ sterling; a table showing the proportionate lengths and diameters of standard Round and Square Files; table showing corresponding numbers of Emery with Bolting Mesh, and with the different cuts of Files; a comparative list of the Locks of other makers which correspond with those made by the Nashua Lock Co.; a classified list of Eagle and Gaylord Locks; comparative list of Chapin's and Stanley's Plumbs and Levels; comparative list of Mix's and Boardman's Britannia Spoons.

With the book the following discount sheet, dated the 22d inst., will be sent out. This house has been in existence forty years, and we believe this is the first general discount sheet they ever issued:

Page.	Dis. per cent.
2, Snell's Boring Machines	20
2. Extra parts to Boring Machines	net
3, "Phillip's" Boring Machines	25
4. Snell's Car and Auger Bits	20
4, Phœnix "	40
5. Snell's Augers	20
6, Gimlets, Taper Pod and Bits	20
7. Expansive Bits and Parts	15
8, Bellows	20
9, Anvils, Eagle, F. & N	15&10
10, Vises, F. & N	15&10
11, Standard Axes. Less per doz. 50c	net
11. Double Bitted Axes	15
11, Handled Axes	net
11, "Rider's" Standard Axes	net
11, " Handled Axes	net
11, " " Beveled," should read "Double Bitted"	net
11, Spanish Axes	15
12, Sledges, Smiths' Hammers, etc	15
12, Broad Axes, all Patterns	20
13, Adzes	20
13, Grub Hoes	20
13, Grub Hoes, with Cutters	20
13, Mattocks	20
14, Picks	20
14, Broad Hatchets	25
15, Shingling, Claw and Lath Hatchets	25
15, Boys' Axes and Hunters' Hatchets	25
17, Mann's Axes, less per doz. $1	net
18, H. Clark's Awls and Tools	30&10
18, Saw Sets, Common Lever	net
" Stillman's	10
" " Pattern	10&10
Aiken's Pattern	12½
19, L'Hommedieu Ship Augers and Bits	15
19, Convex Nut Augers	40
19, Metal Head Gimlets	20
20, Socket Framing Chisels	60&10
20, Socket Framing Chisels solid C. S. Bits	60&15
20, Socket Framing Chisels solid C. S.	60&15
21, Socket Corner Chisels	60&10
21, Carpenter Slicks	60&10
21, Socket Firmer Chisels, "Extra" 6 inch blades	60
22, Socket Firmer Chisels, No. 1 5 in. blades	60&10
22, Socket Firmer Chisels, No. 2 4½ inch blades	60&20
22. Long Thin Paring Chisels	60&10
23, Socket Firmer Gouges	60&10
23, Drawing Knives	60&10
23, Carriage Makers' Drawing Knives	60&10
23, Shingle Knives	60&10
23, Socket Scratch Awl	10
24, Iron and Wood Inclinometers	40
24, Plumb and Levels, Nos. 6 and 10	60
25, Plumbs, Levels and Inclinometers	60
25, Level and Plumb Glasses	60
26, Iron Pocket Levels, Nos. 36 to 39 inclusive	25
26, Iron Pocket Level, No. 37½	50
26, Iron Block Plane, No. 43	33½
27, Improved Iron Bench Planes	30
28, "Scioto" Bench Planes	50
28-39, All Planes to No. 151 inclusive—except with English Irons, and Planes without Iron-; also, box, rose and apple wood Planes and Panel Plows of all kinds	35
28-39, Box, rose and apple wood Planes and Panel Plows of all kinds	30
30, Planes with English Irons	net
30, Planes without irons	10
39, Gauges	25
40, Chisel and other Handles	25
40, Chalk Line Spools	25
41, Common Auger Handles	25
41, Patent "	net
41, Cross-Cut Saw, Plane and Handsaw Handles	25
42, Bench and Tail Screws	20
42, Hand Screws	25
42, Cabinet Clamps	25
43, Mallets	20
43, Rolling Pins, Mauls and Potato Mashers	10
43, Saw Frames and Bucks	10
44, Coopers' Wood Tools	25
44, Tress Hoops, No. 1	20
44, " Nos. 2 and 3	30
45, Coopers' Edge Tools	20
46, 47, Plane Irons	10
47, Turning Saw Frames, and with Saws	20&10
47-49, Boxwood Rules	60&10*
50, Ivory Rules	50*
51, Boxwood Calliper Rules	60&10*
51, Ivory "	50*
51, Miscellaneous Rules	50*
52, Marking, Mortise and Panel Gauges	45*
52-53, Scholl's Patent Gauges	40*
53, Butler's "	40*
53, Try Squares	45*
54, Sliding T Bevels	45*
54, Screw Drivers	40
54, Sewing Machine Screw Drivers	net
54, Rubber Tipped Door Stops	25*
54, Plain and Plush Tipped Base Knobs	10
55, Coe's Genuine Wrenches	40&5†
55, Imitation Coe's "	60&10
55, Taft's "	70&5
55, Baxter's "	15
56-62, Miller's Pocket Knives	25
62, Turner & Cowlishaw's Razors	5
62, Shears, Scissors, &c	70
63-66, United States Steel Shear Co., Scissors, &c.	25
66, Hunt's Razor Strops	40
66, Genuine Emerson Razor Strops	25
66, Emerson "Souvenir" Razor Strops	net
66, Files	10
69, Stevens' Mitre Board	20
70, Family Grindstones	20
70, Framed Grindstones	20
71, Cut Tacks: ½ weight American	72½‡
⅛ " Swedes and Miners	62½‡
full " American	45‡
" " Swedes and Miners	25‡
71, Hungarian Nails	30‡
71, Tinned Tacks	25‡
71, Gimp and Lace Tacks, blued	10‡
71, " " tinned	25‡
71, Brads and Patent Brads, full weight	net‡
71, " " half weight	50‡
72, Copper Tacks	net‡
72, Large Head Carpet Tacks, Swedes	net‡
72, " " American Iron	net‡
72, Leathered Tacks	net‡
72, Cigar Box Nails	net‡
72, Chair Nails	net‡
72, Copper Nails	net‡
72, Brush Tacks	net‡
72, Finishing, Trunk and Clout Nails	net‡
72, Tinned, Trunk and Clout Nails	net‡
73, Looking Glass Tacks	net‡
73, Hame Nails	net‡
73, Fine 2d Nails	net‡
73, Barrel Nails	net‡
73, Basket Nails	net‡
73, Glazier's Points	net‡
73, Swedes Iron, Card, Upholsterers', Miners', Pail, Carpet, Felting and Coopers' Oval or Flat Head, in bulk	net†
73, Tinned Tacks, in bulk	net‡
74, Gimp and Lace Tacks, in bulk	net‡
74, Brads and Patent Brads, in bulk	net‡
74, Shoe Nails	net‡
74, Miscellaneous Nails	net‡
75, Shoe Tacks	net‡
75, Channel Nails	net‡
75, Lining and Saddle Nails	20
75, Heel and Toe Plates	net
76, Steel Shanks	20
77, Iron Screws	52½
77, Brass Screws	52½
78, Black and Tinned Iron Rivets	25&7½
79, Carriage Block, and other Rivets	7½
80, Wellington Emery, 10c. lb	net
80, Flour " 8c. "	net
81, Union Oil Stones and Hones, case 12 stones	70
81, Union Oil Stones and Hones, case 24 stones	50
81, Union Oil Stone Holder	25
81, "Eagle" Emery Cloth	15
81, "B. and A." Sand Paper	10
81, We have on hand a stock of "Diamond" Sand Paper, which we warrant equal to the best, at same list as B & A	15
82, Narrow Fast Cast Butts	45*
82, Broad Fast Cast "	50*
82, Mayer Hinges	45*
83, Cast Narrow Butts, loose joints	55*
82, Cast Broad "	60*
83, Parliament "	45*
84, Loose Pin Acorn Butts	50*
85, Wrought Brass Butts	30
85, Cotton Chalk and Fish Lines	50
85, Family Soldering Irons	20
86, Cheese and Butter Tryers	20
87, Flour and Coffee Tryers	20
87, Door Springs	20
87, Carpet Stretchers	20
88, Spoke and Cooper Shaves	20
88, Coopers' Boring Machines	20
88, Horse Shoe Saw Sets	20
88, Pruning and Sheep Toe Shears	20
88, Pruning Saw with Chisel	20
88, " " " Hook	20
89, Edging Knives	20
89, Weeding Forks	20
90, Garden Reels	20
90, Boys' Sets Garden Tools	20
90, Shuffle Hoes	20
91, Floor Scrapers	20
91, Garden Hoes and Rakes	20
92, Lothrop's Trowels	10
93, " Garden Trowels	25
93, " " Forks	25
93, Ames' Shoe Knives	15
93, Ames' Skivers	15
93, " Bread and Kitchen Knives	15
93, Lothrop's Mincing Knives	10
94, Smith's Patent Mincers	16⅔
94, Messenger Can Openers	net
95, Sad Irons	15
95, Tailors' Geese	net
95, Gleason's Shield Sad Irons	5
95, Polishing Irons	net
95, Toilet Irons	5
95, Self-heating Tailors' Irons	5
96, " Smoothing Irons	5
96, Mrs. Cook's Polishing Irons	net
96, Keystone " "	10
97, Burlingame Horse Hopples	10
97, Horse Hopples	10
97, Bay State Coring, Paring and Slicing Machine	10
97, Bay State Peach Parer	10
97, Skeleton Parer, Corer and Slicer	10
98, Improved Union Apple Parer, $8 per doz	net
98, Whittemore Nut Crack	20
98, Meat Cutters	10
99-122, Sherwood's Wire Goods	net
122, Mrs. Cole's Fluting Machines	net
123, " Pony Fluting Machine	net
124, C. S. Dividers	30&10
124, C. S. Compasses	30&10
124, C. S. Wing and Double Callipers	30&10
125, C. S. In and Out Callipers	30&10
125, Rotary Hammer Saw Sets	15
125, Spring and New Pattern Hammer Saw Sets	15
126, New Pattern Lever and Lever Saw Sets	15
126, Plate Saw Sets	15
126, Timber Scribes	15
126, Spring Punches	15
127, Stocks and Dies	15
127, Taper Taps	15
128, Hand Bells	70
128, Milkman's and Auctioneers' Bells	net
128, Barton Gongs	33⅓
128, Alarm Door Bells	25
128, House Bells	20
129, Cow Bells	25
129, " Bell Straps	
129, Sheep Bells	20
129, " Bell Straps	
129, Shaft and Pole Chimes	25
130, Round and Open Sleigh Bells	25
130, Body Straps	25
130, Neck "	25
132-135, Chaces' Neck and Body Straps	25
137, Taylor's Bells	25
139, "	25

* Subject to 10 per cent. Extra Discount if paid within 30 days.
† Not subject to our Cash Discount of 1½ per cent.
‡ Subject to 7½ per cent. for Cash within 30 days

Page — Dis. per cent.
140-141, Taylor's Western Gong Bells ... 25
143, Taylor's Western Gong Bells ... 25
144, " Russian Sleigh Bells ... 25
145, " " " ... 25
146, " Patent Shaft Bells ... 20
147, " Swiss Hand Bells ... 25
148, Weed's Self-boring Molasses Gates ... 15
148, " Composition Faucets ... add 10
149, Brady Lanterns ... 10&10
151, Ætna " ... 10&10
152, De Beque " ... 10&10
154, Yankee " ... 10&10
155, "Star Tumbler" Lan'ns, less than 25 doz. .net
" " " 25 doz. ... 10
" " " 50 doz. ... 15
" " " 100 doz. ... 20
156, Hitching Rods ... net
157, Chain Door Fasteners ... 10*
158, " " ... 10*
159 298, Nashua Lock Co.'s Locks, Knobs, Keys, Escutcheons, &c.
298, Tobacco Cutters, ₩ doz. $18·00 ... 45&5
311-318, Band D Locks and Latches, Padlocks, &c 20
319-321, Trunk Locks ... 15
321-332, Eagle, Chest, Desk, Box, &c., &c., Locks .. 25
332, Eagle Lock Keys ... net
333, Plate Casters, "Toler's," except Porcelain Wheels ... 30&10
333, Shallow Socket Casters, except Porcelain Wheels ... 30&10
333, Porcelain Plate Casters ... 40&10
334, Deep Socket Casters ... 30&10
334, Bed Casters, except Porcelain Wheels ... 33⅓
334, " with " " ... 40
335, " Globe, with Porcel'n Wheels .. 33⅓
335, Bracket Bed Casters ... 33⅓
335, Truck Casters ... 33⅓
335, Iron Furniture ... 30&10
335, Piano Casters ... 33⅓*
335 Extension Casters ... 30&10
336, Ford's Casters ... 25
37, Gross' " ... 25
338, Door and Gate Springs ... 10
338, Torrey's Door " ... 50
338, Rubber Door Springs and Bands ... 10
339, "Anti-Friction" Barn Door Hangers ... 30
340, R. and C. Barn Door Hangers ... 40&10
341-348, Middleboro' Shov., Spades, and Scoops . 12½
348, Ames' Shovels and Spades ... 12½†
349, Scythe Snaths ... 25
349, Grain Cradles ... 20
349, Cradle Fingers ... net
350-351, Scythes ... 25
352, Bush Scythes, Hay and Straw Knives ... 20
352, Grass Hooks, Nos. 1, 2, 3, 4 ... 20
352, " " R. and M ... 10
352, Corn Knives, No. 1 ... 20
352, Elbow Corn Cutters ... 40
352, Scythe Stones ... 10
352, " Rifles ... 10
353, Manure, Hay and Spading Forks ... 30
353, Potato Hooks ... 30
354, Hoes ... 30
354, C. S Rakes ... 33⅓
354, Malleable Rakes ... 25
354, Wood Head Rakes ... 40
355, Handles ... 10
355, Moore's Floral Tools ... 20
355, Floral Tools in Sets ... 25
355, Hoe and Rake ... 25
356, Steelyards ... net
356-357, Spring Balances and Bow Scales ... 15&7½
357, Beam Balances ... 33⅓
357, Platform Scales ... 30
357, Hatch' Tea and Counter Scales ... 25
358-360, Wood's Cutlery Co., Knives, &c ... net
360 Beatty's Cleavers and Choppers ... 15
361-366, Eddy's Tapes ... 20
366, Glass Curtain Pins ... 50&5
367, Thermometers, Tin Case, Dairy, Metal Wood Case ... 50&5
367, Black Walnut or Cabinet Case should read "oiled" *not* "old," and fancy Thermometers ... 10
368, Trace Chains
368, Breast "
368, Heel "
369, Lead Traces
369, Breeching Chain
369, Back Cart "
369, Coil and Best Crane Chain
369, Twisted, Link and Cemetery Chain
370, Wagon Chain
370, Ox or Log Chain
370, Ox and Cow Ties
370, Mining Traces
(368–370: Market Prices.)
370, Wrought Staples ... 70*
37 Hooks and Staples ... 70*
371, Hasps and Staples ... 70*
371, Awning Hooks ... 70*
371, Tinned Meat Hooks ... 70*
372, Trap Door Rings and Staples ... 70*
372, Wrought Rings ... 70*
372, " S Hooks ... 70*
372, " Horse Hooks ... } 60&10*
372, Hitching Rings ... } Short List*
372, Hinge Rivets ... 70*
373, Strap and T Hinges ... 20&10*
373, Narrow Fast Wrought Butts ... 30
373, Broad Fast " " ... 35
374, Table, Back Flaps and Inside Blind Butts ... 30
374, Providence Hinges ... 20
374, Heavy Welded Hook Hinges ... 20
374, Washburn's Patent Blind Hinges ... 10
374, Van Sand's Patent Screw Blind Fasts ... net
374, Clark's Blind Hinges ... 45&10
374, Parker's " ... 45&10
375, State Gate Hinges ... 60&10*
375, New England Gate Hinges ... 65&10*
375, Spiral Spring Gate Latches ... 60&10*
375, Automatic Gate Hinges and Latches ... net
375, Leed's Gate Hinges and Fasts ... net
375, Clark's Improved Gate Hinges ... 25
375, " Gate Latches ... 15
376, Hat and Coat, and Wardrobe Hooks ... 60&5*
376, Hotel or School House Hooks ... 60&5*
376, Harness Hooks ... 60&5*
376, Clothes Line Hooks ... 60&5*
376, Brass Knob Barrel Bolts ... 60*
376, Bronzed Iron Barrel Bolts ... 60&10*
377, Square Door Bolts ... 60*
377, " Cased Bronzed Iron Bolts ... 60&10*
377, Square Neck Bolts ... 60*
377, Flat Shutter Bolts ... 60*
377, Chain Bolts ... 60&10*
377, Square Cased Bronzed Chain Bolts ... 60&10*
377, Spring Foot Bolts ... 65*
377, Thumb Latches, Blake's Pattern ... 60*
377, Roggen's Latches ... 60&10*
377, Barn Door Latches ... 60&10*
377, Store Door Handles, No. 6 ... 65&10*
377, Store Door Handles, Nos. 16, 26 ... 60&10*
378, Door Buttons, Japanned ... 60*
378, " Brass ... 60*
378, Drawer Pulls, except No. 1 and No. 2 ... 60*
378, " " No. 200, No. 1 ... 60&10*
378, Wrought Chest Handles ... 60*
378, Surface " ... 65&10*
378, Flush Chest Handles ... 60&10*
378, Screw Pulleys ... 60*
378, Side " ... 60*
378, Clothes Line Pulleys ... 60*
379, Tackle " ... 60*
379, Hot House " ... 60*
379, Usual Axle " ... 20*
379, Judd's " " ... 10
379, Blake's Axle and Sham Axle Pulley ... net
379, Frame Pulleys ... 60*
379, Well Wheels ... 60*
380 Barn Door Hangers ... 60&10*
380, Check Back " ... 60&10*
380, Barn Door Rollers ... 60&10*
380, " Rail ... 60&10*
380, Iron Bench Screws ... 60*
380, Keystone Grindstone Fixtures ... 66⅔*
381, Grindstone Fixtures ... 15
381, " " with Flange ... 15
381, Lemon Squeezers ... 10
381, Blake's Nut Cracks ... 40&10
381, Roller Ends ... 50*
381, Shade Brackets ... 50*
381, Rack Pulleys ... net
382, Sash Fasts, Judd's ... 20
382, Window Spring Bolts, "Judd's" ... 60
382, Wrought " ... 20
382, Sash Cord Irons ... 60*
382, Tack Hammers ... net
382, Magnetic Tack Hammers ... 20
382, Upholsterers' and Sadlers' Hammers ... 10
382, Tack Claws ... 25
383, Maydole's Hammers ... 5
383, Cheeny Hammers ... 10
384, "H. Clark" Nail Hammers ... 25
384, " Riveting and Engineer Hammer .. 40
384, Barber's Braces ... 40&5
385, Bartholomew Braces ... 40&5
385, American Ball Braces ... 15&10
385, Spofford's Braces ... 40&5
385, Steel and Iron Squares ... 50
386, Spokeshaves, Iron ... 30
386, Spoke Trimmers—Bonney's and Stearns' ... 25
386, Hollow Augers ... 33⅓
386, Bonney's and Stearns' Hollow Augers ... 25
386, Jennings' Auger Bits ... 10
386, Andrews' " ... 30&10
386, Cook's " ... 40
Change 4-16ths to $4·50.
387, Disston's Saws ... 12½†
389, Cabinet Scrapers ... 12½†

Page — Dis. per cent.
391, W. M. & C. Saws ... 15
"Tennis" Hand Saws ... 10
" Champion Cross-Cut Saws ... 10
Boynton's Lightning Cross-Cut Saws ... 10
391, Common Cross-Cut Saws ... 10
392, Livingston Wood Saws ... 10
392, "Tennis" " ... 10
392, Saw Frames ... 10
392, Saw Bucks ... 10
392, Wilson's Coffee Mills ... 15
392, 393, Parker's " ... 10
393, Enameled Kettles ... 25
393, Saucepans and Glue Pots ... 20
393, "Eureka" Family Glue Pots ... 25
393, Brass Kettles ... net
393, Copper Rivets and Burs ... 30
393, Copper and Brass Wire ... 10
394, Belt Hooks ... 50&10
394, Blake's Belt Studs ... 10
394, Iron Wire ... } Market
394, Fence Staples ... } prices.
394, Boardman's Blind Staples ... net
394, Sash Cord, Nos. 0, 2/0, 1, 2 and Com ... 10
374, " Nos. 3, 4, 5, 6, 7 ... net
395, Judd's Tinned Harness Snaps ... 33⅓
395, Hull's Japanned Harness Snaps ... 50*
395, Cattle Ties ... 50*
395, Bull Rings ... 60*
395, Welton's Cattle Leaders ... 60*
395, Ox Bow Pins ... 50&10*
396, Ox Balls ... 60*
396, Fitch's Curry Combs ... 15*
397, Hotchkiss' " ... 25
397, Rubber " ... 10
397, Horse Cards ... 30*
397, Cotton " ... 10*
398, Wool " ... 15*
398, Jim Crow Cards ... 15*
398, Carpenters' Chalk ... 10*
398, Chalk Crayons ... 10*
398, Dixon's Lead Pencils ... 10
398, Rope's Carpenter Pencils ... 30&10
398, "Copenhagen" Carpenter Pencils ... 10
398, Dixon's Lumber Pencils ... 10
398, Oneida Traps ... 20
398, P. S. and W. Imitation Traps ... 30
399, Wood Mouse Traps ... 40&10
399, Round and Square Wire Mouse Traps ... net
399, Squirrel Cage Mouse Traps ... 10
399, Round and Square Wire Rat Traps ... net
399, Collier's Square Tinned Wire Mouse Traps . net
399, Ox Muzzles ... net
399, Iron and Tinned Wire Sieves ... net
399, Corn Poppers ... net
400, Tinned Wire Broilers ... 10
400, Round Wire Dish Covers ... net
400, Skimmers ... net
400, Toasting Forks ... net
400, Egg Beaters—Spoon ... net
400, Monroe's Egg Beaters ... 5
400, Dover " ... net
400, "Peerless" " ... 10
400, Mackey's " ... net
400, "Centripetal" Egg Beaters ... 5
400, Handles ... 10
401, Hammer and Hatchet Handles ... 10
401, Ice Picks, Nos. 1 and 10 ... 60*
401, White's Ice Picks ... net
401, Dunlap's Ice Picks ... net
401, Ice Axes ... 50*
401, Plumbs and Levels, Nos. 102, 103 ... 60&10*
00 0 1½
401, Plumbs and Levels, Nos. 1, 2, 3, 4 ... 60*
402, Plumbs and Levels, Adjustable ... 60*
402, Plumbs and Levels, not adjustable ... 60&10*
402, Pocket Levels ... 50*
403, Lathrop's Trammel Points ... 25
403, Oil Stones, Washita ... 12½
403, Washita Slips and Axe Stone ... 10
403, Hindostan Stone ... 10
303, Arkansas and Turkey Stone ... net
403, Sand Stone ... net
404, White Lead ... net
404, Slates ... 60&10
404, Slate Pencils, Common ... net
404, Soapstone Pencils ... 10
404, Awls ... 20
404, Pinking Irons ... 20&5
404, Cigar Box Openers ... net
404, Sardine Knives ... 20
404, Sardine Scissors ... 20
405, "Eureka" Can Openers ... 10
405, Miles' Meat Cutters ... 25
405, Hale's " ... 25
406, Stow's Stuffers ... 5
406, Steak Hammers and Ice Picks ... 20*
406, Oyster Knives ... 15
406, Fluting Scissors ... 20&10
406, Curling Tongs ... 20
406, Curling Irons ... 50
406, Ship Scrapers ... net
407, Box Scrapers ... 20&10
407, Box Chisels ... 30
407, Cotton Hooks ... 20
407, Hay Hooks ... 20
407, Sheep Shears ... 25
407, Pruning Shears ... 25
407, Lamp Trimmers ... 10
407, Cork Lined Faucets ... 60
407, Fenn's Faucets ... 50
408, " Cork Stops ... 40
408, " Star Faucets ... 60
408, Petroleum Faucets ... 15&10
408, Stebbins' Molasses Gates ... 60&10
408, Lincoln's Molasses Gates ... 50
408, Self-Measuring " ... 20&10
408, Brass Racking Cocks ... 20&10
408, " Lever Bibs ... 20&10
408, " Globe Cocks ... 20&10
409, Chace's Oilers ... 30
409, Broughton's Oilers ... 25&10
409, Olmsted's " ... 25&10
409, Malleable " ... 10
410, Stair Rods and Fasts ... 33⅓
410, Plated Spoons and Forks ... 40&5*
411, German Silver Spoons ... 30
411, Britannia Spoons ... 40&10
412, Iron Tea and Table Spoons ... 10
412, Basting Spoons ... 10
412, Preserve Spoons ... 10
412, Galvanized Clothes Line Wire ... net
412, Common Clothes Pins ... net
412, Smith's " " ... 10
412, Coal Hods ... 40
413, "Morning Glory" Coal Hods ... 40
413, Coal Shovels ... 10
413, Stove Cover Lifters ... 10
413, "Always Cool" Cover Lifters ... net
413, Dixon's Stove Polish ... 5
413, "Black Diamond" Stove Polish ... 10
413, "Gem" Stove Polish ... 10
413, Porcelain Head Picture Nails ... 20
413, Brass Head Picture Nails ... 60*
414, Horse Nails ... net
Ausable Nails in lots of 1000 lbs ... 5
Clinton " " 1000 " ...
Buffalo Forged Nails in lots of 1000 lbs ...
Union Nails in lots of 1000 lbs ...
Brundage " " 500 " ... 5
Putnam " " 2000 " ... 5
Vulcan " " 500 " ... 5
" " " 1000 " ... 7½
Eureka " " 1000 " ... 5
Globe " " 1000 " ... 5
414, Toe Calks ... net
414, Horse and Mule Shoes ... market prices
415, Borax ... 15
415, Tuyere Irons ... 10
415, B. S. Tongs ... 40
415, Horse Shoeing Pincers ... 30&10
415, B. S. Butteris " ... 30&10
416, Common Carriage and Tire Bolts ... 75*
417, Philadelphia Carriage and Tire Bolts ... 50&10
417, Stove Bolts ... 10
418, Hand Rail Screws ... 33⅓
418, Bright Wire Goods ... 70&10*
419, Iron Jack Chain ... 50
419, Brass " ... 40
419, Bright Coil and Halter Chain ... 20
419, Galvanized Pump Chain ... net
419, Parallel Bench Vises ... 30
420, Solid Box Vises ... 20
421, Breast Drills ... 10
421, Ratchet Drills ... 30
421, Plyers and Pincers ... net
421, Button's Patent Wire Plyers ... 33⅓
422, Jail Padlocks ... 20
422, Tolner's Acorn Padlocks ... 10
422, Romer's Brass " ... 10
423, M. W. & Co " ... 45&1&5*
423, Pad Keys ... 45&1&5*
421, Cartridges ... 50&10
424, Disston's Trowels ... 12½†
424, Bisbee's Brick Trowels ... 10
425, " Trowels ... 10
425, Leach's Saw Sets ... 15
425, " Wire Cutters ... 15
426, Shelf Brackets ... 33⅓
426, Clock Shelf ... 33⅓
427, Drawer Pulls ... 33⅓
427, Cage Hook ... 33⅓
427, Ceiling Hooks ... 33⅓
427, Hand Clamp ... 33⅓
428, Garden Engine ... net

W. F. Shattuck & Co. have issued the following sheet of prices and discounts on the goods they represent:

Brundage or Middletown Forged Horse Nails.

5	6	7	8	9	10
29c.	26c.	24c.	23c.	22c.	21c.

1,000 lbs ... dis. 5 %
2,000 lbs ... 10 %
5,000 lbs ... 15 %

New York Forged Horse Nails ... net

6	7	8	9	10
17c.	15c.	14c.	13c.	12c.

Wrenches.
Coe's Pattern ... 60&10 %
Taft's Pattern ... 70&10 %

Scales.
No. 1, Union Steel Bearing, 244 lbs ... $5·00, net
No. 2, Union Iron " 244 lbs ... 4·00, net
Counter Scales, No. 1, $1·50; No. 2, $2·38; No. 3, $3·00; No. 4, $4·00 each ... 10 %
Hatch Scales, 8 lbs., No. 13, $3·00; Tea Scales, $1·25 ... dis 25 %
Grocer Scales, No. 1, 65 lbs., $9·00; No. 2, 36 lbs., $7·50 ... dis. 25 %
Buffalo Platform Scales ... 25 %
Scale Beams ... 50c. per 100 lbs., net

Ring Tap Borers ... dis. 30 %

Inch	1	1¼	1½	1¾	2	2¼	2½	3
	$3·75	5·00	6·00	7·00	8·00	10·00	12·00	16·00

Door Stops. Rubber Tip, No. 8 ... dis. 50 %

	Birch.	Walnut.	M'gany.	Porc. Enamelled.
2½ inch,	$10·00	11·00	11·00	12·00 per gross.
3 "	11·00	12·00	12·00	13·00 "

Yaw's Cow Bells ... dis. 35 %

Nos.	0	1	2	3	4
	$12·50	9·50	8·50	7·50	6·00 per doz.
Size	7x5	6½x5	6x4½	5½x4	5½x3¾

Nos.	5	6	7	8
	$4·50	3·00	2·25	2·00 per doz.
Size	4½x3½	4½x3	3½x2½	2¾x2

Axe Handles ... net

$2·50	1·75	1·35	1·25	0·75 per doz.
Extra.	No. 1.	No. 2.	No. 2 B.	No. 3.

Pick Handles ... net

$2·75	1·75	1·50	1·25
Extra.	No. 1.	No. 1½.	No. 2.

Sledge Handles ... net

	36 in.	34	32	30	24
Extra	$1·75	1·75	1·50	1·50	1·25
No. 1,	1·50	1·50	1·25	1·25	1·00

Gimlets.
Metal Head, Nail Gimlets, No. 1, $4·00; No. 2, $4·50 per gross ... dis. 40 %
Metal Head, Spike Gimlets, No. 1, $8·00; No. 2, $9·00; No. 3, $10·00 ... dis. 40 %
Doule Cut Gimlets ... dis. 50 %

Gimlet Bits.
Per gross.
Double Cut, Assorted, Nos. 1 to 6 ... $15·00, dis. 50 %
With Screw, " " ... 7·50, " 40 %
Without Screw, " " ... 9·00, " 40 %

Phelan's Axes ... net
Phelan's Kentucky Pattern Axes, 4 to 5, 4¼ to 5¼, 4½ to 5½ ... $10·50
Phelan's Ohio Axes, 3¼ to 4¼, 3½ to 4½, 4 to 5, 4½ to 5½ ... 10·00
Phelan's Boys' Axes, handled ... 7·50
Phelan's Handled Axes ... 12·00
Miller's Handled Axes ... 12·00

Phelan's Hatchets, warranted cast steel ... net
Shingling ... No. 1, $4·00 No. 2, $4·50 No. 3, $5·00
Claw ... No. 1, 4·75 No. 2, 5·25 No. 3, 5·75
Lath ... No. 1, 4·75 No. 2, 5·25 No. 3, 5·75
Hunter's ... No. 1, 5·00 No. 2, 5·50 No. 3, 6·00

Jas. T. Maguire's Wrought Iron Goods.
Staples, Hooks and Staples, Hasps and Staples, Hooks, Hasps, Staples, Awning Hooks, Trap Door Rings, Meat Hooks, Wagon Body Staples, S Hooks, Lap Links and Corner Irons ... net cash 70&5 %
Hinge Nails and Rivets ... 60&10 %
Gate Latches complete ... 30&10&10 %
Bar Staples, Pincers, Tongs and Hold Fasts ... 25&10&10 %
Tackle Blocks, all kinds ... 25&10 %

Carriage Spokes.
Hickory, XX ... 20 %
Oak, XX ... 20 %
Hickory, X ... 45 %
Oak, X ... 45 %

Blacking, Jacquand, Pere & Fils—F'ch Impt'd. 25 %

No.	3	4	5
	$9·00	12·00	18·00 per gross.

Dippers ... net
Cocoa Nut, Rimmed ... per doz., $2·50
" Plain ... " 2·00
Britannia, in bbls ... " 4·50
" 1 doz. in box ... " 4·75

Saw Handles.
Beech, Varnished Edges, No. 2 ... per gro., $10·50
" Plain Edges, No. 3 ... " 9·00

Plane Handles.
Fore or Jointer ... per gro., $5·50
Jack ... " 3·50

The following are H. Chapin's Son's net cash discounts from their illustrated catalogue of January, 1874.

New York, September 1st, 1874.

Awl Handles ... dis. 40&10 %
Boxwood Rules ... 70 %
Bench Planes, "Pearce" ... 33⅓&10 %
" " Extra ... 25&10 %
" " Premium ... 25&10 %
" " Sets in cases ... 25&10 %
" " Razee ... 25&10 %
Boring Machines ... 20&10 %
Bench Screws ... 20&10 %
Coopers' Planes ... 25&10 %
Clamp Head Screws ... 20&10 %
Chisel Handles ... 40&10 %
Door Stops ... 30&10 %
File Handles ... 40&10 %
Gauges ... 45&10 %
" Scholl's Patent ... 45&10 %
" Butler's Patent ... 45&10 %
Hand Screws ... 25&10 %
" Beaded ... 25&10 %
Ivory Rules ... 50&10 %
Iron Planes ... 30&10 %
Levels ... 60&10&10 %
Level Glasses ... 60&10&10 %
Miscellaneous Rules ... 50&10 %
" Planes ... 25&10 %
Molding Planes ... 25&10 %
Plows, Grooving ... 25&10 %
" " Patent Adjusting ... 25&10 %
Plumbs and Levels ... 60, 10&10 %
Pocket Levels ... 50&10 %
Plane Irons ... 10&10 %
Ship Planes ... 25&10 %
Stops ... 10&10 %
Screw Drivers ... 10&10 %
Sliding T Bevels, No. 1 ... 30&10 %
" " No. 2 ... 40&10 %
Try Squares, premium ... 30&10 %
" No. 1 ... 30&10 %
" No. 2 ... 40&10 %
Turning Saw Frames ... 20&10 %
" " And Saws ... 20&10 %
Toy Tool Chest Supplies ... 10&10 %

BRITISH IRON MARKET.

(Specially reported by cable for The Iron Age.)

Wednesday, Sept. 23, 1874.

Scotch Pig.—During the week the quotations for maker's Irons have gone up several shillings per ton over the figures last quoted by cable, and the market is now firm at the rise, apparently owing to a genuine shipping demand, the returns for last week showing a very large increase over the corresponding period of last year. Following are maker's prices:

Gartsherrie No. 1 ... 112/6
Coltness No. 1 ... 115/6
Glengarnock No. 1 ... 100/
Eglinton No. 1 ... 92/

Manufactured Iron.—The market is quiet, with a steady demand. Prices are declining, but the amount of business is fair. Best Staffordshire Bars are still nominally quoted £10. 10/@ £11.

Rails.—The demand is improving, and a fair amount of business has been transacted, but prices are weak. Welsh are quoted £7. 10/ £7. 15/.

IRON.

American Pig.—The price continues to be $30 for No. 1 Foundry, and $28 for No. 2, for prime Lehigh brands, and less popular brands have been selling cheaper, as they always must. There is still a great pressure to sell, and some outside lots are offered at extremely low prices without takers. Although a considerable quantity of Iron has been sold, there were no large or noteworthy sales. We quote: No. 1 Foundry, $30; No. 2 Foundry, $28; Gray Forge, $25 @ $27.

Scotch Pig.—The stock here and the demand continue small, and little of moment has been done. We note the sale of 200 tons Eglinton at $34·25. We quote Glengarnock, $37 @ $38, and Eglinton, $35. Our cablegram to day, reports an improvement in the Glasgow market.

Bar.—There is no change to note in the prices of either mills or stores. We continue to quote Refined from mill, 3 cents per lb.

Rails.—Nothing has been done in Foreign. We note the sale of 4000 tons American on private terms. We quote Welsh $48 @ $50, gold, and American $55, at works.

Old Rails.—About 2000 tons have been sold for mill delivery at $30, equal to about $28 here. A great many are offering by railroads, which are underselling other holders.

Scrap.—Scrap from yard is now quoted $33 @ $35. We note the sale of 600 tons, New Bedford delivery, part at $33 and part at $35.

METALS.

Copper.—The week's sales sum up 300,000 pounds Lake, on the spot, to actual consumers, at 21c., and the market is remarkably strong, with large orders at 20⅝c. @ 20¾c., cash, but no sellers at this. Aside from these domestic orders, there are some for export, amounting altogether to 500,000 pounds, at the limit of 20½c. @ 20⅝c. The quantity gone forward to Europe thus far since summer amounts to 8,000,000 pounds, and 2,000,000 are still to follow in the same direction, all purchased, and reported by us at the time. Little, if any, Lake Copper is offering at 21c., holders generally asking 21½c., nor can any "futures" be had under 22c.; the mining companies are entirely out of the market, and offer nothing for forward delivery below 22c. There is a hardening tendency in the market, and we may see higher rates ere the week is brought to a close. European accounts have been getting better week after week, another rise being announced by cable of £1 per ton, Best Selected at London being wired £89, and Chili Bars £80, yesterday. Mail advices from London, to hand to-day, are dated 12th instant, when Chili Bars stood £77 @ £78. 10/, now £80. At the same time the report includes the following passage: "Orders for English manufactured have been limited, and sellers have submitted to a reduction." From this we come to the conclusion that the London improvement is caused by speculation merely, and not by any extra demand from consumers. Cheap money, probably, causes temporary investments in Copper. But, however this may be, it favors the retention of our Copper over there, instead of seeing it return this way, should we go on improving. The British government returns for the first seven months of the current year show pure Copper imports (everything reduced to Copper) of 38,817 tons, against 34,299 and 42,822 in 1873 and 1872, and exports of 38,589, against 35,521 and 27,375. They certainly exhibit quite a healthy state of affairs as compared with 1872, and these are statistics that we can rely on, being official. Baltimore Copper may be quoted firm at 21c. @ 21½c. Manufactured Copper is still unsettled, and so is Yellow Metal. We quote Yellow Metal Bolts 28c. @ 30c., and, nominally, New Sheathing Copper 30c. @ 31c.; Bolts and Braziers, 32c. @ 33c.; and Bronze and Yellow Metal, 22c. @ 23c., net cash.

Tin.—This metal is unusually firm at 21¾c. @ 22c., gold, for Straits, the firmness checking dealings for the present. Arrivals have, it is true, been quite large of this sort latterly, at a cost say from 23c. @ 24c., gold, laid down here, and as the receivers are financially strong enough to go into store with them, instead of forcing a sale on the dock, involving a heavy loss, they prefer to hold on to their goods, and this with all the more reason as the European and East India telegrams thus far to hand this week are of a decidedly encouraging nature, and on carefully studying the foreign reports and statistics come to hand the past day or two, it will be found that the article wears a solid, promising look. This specially relates to the reduced stock of Banca in Holland, in second hands, say 10,676 Slabs against 22,096 a year ago. The price there on the 1st instant was 57 guilders, against 79 on September 1, 1873, and 93½ in 1872, for Banca; it has declined to a point so low that with a generally improving outlook it is fair to presume a gradual rise may take place, which will assimilate it more to the value of preceding years. As regards English Tin, which has run so low in stock in our midst, prices on the other side have improved too much to warrant importation here, unless we also advance. We cannot quote English Refined above 21¾c., gold, and L & F 21½c., Banca 25½c. @ 26c., all gold. By cable yesterday London quotes Straits £94, English Refined, £99, and L. & F. £98. Singapore on the 18th instant stood $24·75 per picul for Malacca Tin, and yesterday wires, £25 and strong. Nothing has been done in New York in Tin to arrive, none of the importers caring to sell ahead what there is no prospect of obtaining cheap enough to make but a mere fraction of profit on. The Dutch Trading Company will sell 20,300 slabs Banca on the 29th instant. A cheerful tone is also obtaining in the Tin Plate market among us. Cables have been received the past few days' reporting large transactions in England. I. C. Coke has run low in stock in our midst, nor is it easy to purchase the same "to arrive," and we have to single out this description as being the stiffest on the the list, a good jobbing business being reported for the week in all kinds, with a good deal more firmness as we proceed, and closing quite strong at the following quotations: I. C. Charcoal, $9·75 @ $10, gold, per box; I. C. Coke $7·75 @ $8·25; Coke Terne, $6·75 @ $7, and Charcoal Terne, $8·75 @ $9·25, all gold.

Lead.—Not much animation can be reported with respect to this metal, with which we are, from all appearances, returning to dull times once more. The government sold some 500 tons at 6c., gold., and since then 200 tons Domestic have changed hands at 6·05 @ 6·10c., gold. As regards the general tone of the market, it has, however, to be put down as decidedly strong, which specially refers also to Foreign, firmly held at 6⅝c. @ 6¾c., gold, the accounts from abroad continuing quite buoyant. The London report by mail reads as follows: "London, Sept. 12.—The firmness of the market continues, and sellers are anticipating higher prices. Not only is there a satisfactory inquiry, but the supplies of Spanish are limited, and this will probably be so while Spain keeps in such a disturbed state. As there is no appearance of the civil war terminating, but rather the contrary, Lead will, no doubt, maintain its present position for some time to come." We quote Refined Foreign 6⅞c. @ 7c., gold, and as for the manufactures of Lead, we quote Bar, Pipe and Sheet 8¼c., less 10 per cent., and Tin Lined Pipe 16½c.

Spelter and Zinc.—Domestic Spelter has become a trifle firmer, and 6⅜c., currency, is insisted upon by holders, with a moderate jobbing business transacting. Foreign is firm and quiet at 6½c. @ 6⅝c., gold, for ordinary to best brands Silesian. C. G. H. selling at 6·80, gold, to arrive, in 25 ton lots. The London accounts to Sept. 12 are as follows: "The principal transactions that have been reported in this metal have been for deliveries at outports, and the prices realized have ranged from £21. 17/6 to £22. 5/, the market closing at the latter price. In Hard sales have been made at £14. 15/." Other reports, by the same mail, state that a good trade is doing, and that Foreign Spelter has advanced between 7/6 and 10/ during the week, the supply of English, owing to sales effected so far forward, being still nominal and very high prices asked for these sorts. We have on various occasions mentioned, in these reports, that the causes which are in operation to enhance the value of Spelter in Europe are twofold, viz., difficulties of transportation from the mines, and an extra demand for France, apparently not yet satisfied. Sheet Zinc here, of the better descriptions, is scarce and firmer at 8⅜c. @ 8½c., gold.

Antimony.—There is a better demand and more selling, and we are able to quote the same firm at 11½c. @ 11¾c., gold.

COAL.

There has been no improvement in the Coal market since last week, and business is exceedingly dull for this season of the year. Dealers say that there will be no change of consequence until the month of November, when a better business is expected. Monthly circulars have already been issued, which will advance the prices of all kinds of Anthracite Coal, for October delivery, 15 cents per ton. The regular monthly sale of Scranton Coal takes place next Wednesday; 50,000 tons will be offered for sale. The circular of Mr. Frederick A. Potts, No. 110 Broadway, quotes as follows for October delivery:

Shipped from Port Johnson, Elizabethport, Hoboken and Trenton.

	Lump.	Steamer.	Broken.	Egg.	Stove.	Chestnut.	Washed Pea.
	$	$	$	$	$	$	$
L. & W. C. Co.'s, Wilkesbarre	5 40	5 50	5 60	5 75	6 25	5 20	3 75
L. & W. C. Co.'s, Old Co. Lehigh	6 35	....	6 30	6 30	6 45	5 50	4 00
L. & W. C. Co.'s, Plymouth Red Ash	....	....	5 60	5 75	6 35	5 20	....
L. & W. C. Co.'s, Honeybrook Lehigh	6 20	....	6 15	6 15	6 30	5 35	4 00
L. & W. C. Co.'s, Spring Brook Lehigh	6 20	....	6 15	6 15	6 30	5 35	4 00
L. & W. C. Co.'s, Room Run	5 85	....	5 85	5 85	6 20	5 20	4 00
Fulton Lehigh	6 35	....	6 30	6 30	6 45	5 50	4 00
Scranton	5 40	5 50	5 60	5 75	6 25	5 20	....

The market for Bituminous Coal still continues very dull, but the proprietors of the mines are in hopes that the demand will soon be better. There has been a better inquiry, however, for Cumberland Steam Coals this week than for some time past.

The quotations for Anthracite are $5·50 @ $6·50, by the cargo, and for Gas Coals the prices are: Cumberland, $6·50 @ $6·75; West Virginia, $7·50 @ $8; Pennsylvania and Westmoreland, $7·50 @ $7·75; American Cannel, $12 @ $14; Broad Top, $6·25; Decatur, $6·25; James River Carbonite, $9 @ $11; Youghiogheny, $7; Murphy Run, $7·40; Monongahela, $7·50; West Fairmont, $7·50; Sterling, Ohio, $12; Kanawha Gas, $13; Kittaning, $6·25; Ince Hall, $13 @ $15; Newburg Orrel, $7·50; Cloverhill, of Virginia, $6 @ $6·50; Derby, $6·25; Shafton, $7·75; Despard, $7·50; Cannelton Cannel at New York, $12·50; Red Bank Cannel, at Philaphia, $8·50; Ritchie Mineral, of West Virginia, at Baltimore, $18.

Foreign is dull, but an improvement is expected. We hear of sales to arrive of 500 tons English Cannel at $17, cash.

Our quotations are as follows: Liverpool House Cannel, $17 @ $18; Liverpool Gas, $10; Newcastle Gas, $7·50 @ $8; Scotch, $9.

The Coal transported over the Cumberland Branch Railroad during the week ending September 19, 1874, amounted to 5504 tons, as against 6461 tons shipped in the corresponding period of last year, showing a decrease of 957 tons. Over the Cumberland and Pennsylvania Railroad, for the same period, the shipments were 47,142 tons, against 57,433 tons shipped in 1873, a decrease of 10,291 tons.

OLD METALS, PAPER STOCK, &c.

The market for Old Metals, Rags, Paper Stock and other junk materials still continues very quiet. Prices are firm, and our quotations remain unchanged. The demand for Rags and Paper Stock is steadily improving, and the past week has been a very active one in some departments. There is but little call for Old Metals, with the exception of Copper, which is in moderate request. We quote the following as the current purchasing rates;

Old Metals.—Copper, 15c. @ 16c. per lb.; Yellow Metal, 11c.; Brass, 10c. @ 12c.; Composition, heavy, 13c. @ 14c.; Lead, solid, 5½c.; Tea Lead, 4c.; Zinc, 4½c. @ 5c.; Pewter, No, 1, 19c.; do., No. 2, 8c. @ 12c.; Spelter, 5c. @ 5½c., Wrought Iron, 1¼c.; Sheet do., ½c.; Cast, do., ½c. @ ¾c.; Machinery, do., ¾c.

Rags, &c.—Canvas, Linen, 5c. @ 5½c.; do. Cotton. No. 1, 6c. @ 6¼c.; No. 2, 2½c.; White, No. 1, 6¼c.; No. 2, 4c.; Colored, do., 2c. @ 2½c.; Mixed, Woolen, 2c. @ 3c.; Soft, do., 4½c. @ 5c.; Gunny Bagging, 1c.; Jute Butts, 1¾c. @ 2c.; Kentucky Bagging, 3c.; Book Stock, 3c.; Waste Paper and Scraps, 1½c.; Kentucky Bale Rope, 4c.; Oakum Junk, No. 1, 4½ @ 5c.; do. No. 2, 3c.; Tarred Shaking, 1c. @ 1¼c.; Grass Rope, 3c.

IMPORTATIONS.

Of Hardware, Iron, Steel and Metals into the Port of New York, for the week ending September 22, 1874:

Hardware.

Beam & Murray, Casks, 16
Boker Hermann & Co. Packages, 7
Burbank S. D. & Co. Packages, 1
Fuller Bros. Cases, 2
Falconer J. M. Cases, 2
Field A. & Co. Mdse. pkgs., 75 Cases, 24
Friedmann & Lauterjung Steelware, cs., 6
Folsom H. & D. Arms, cs., 4
Hilger E. & Sons, Mdse. pkgs., 13
Hugill Chas. Packages, 2
Harmar Wm. Cases, 3
Hutchinson J. W. Guns, cs., 3
Long J. E. & Co. Packages, 1 Chains, 9
Lan & Garlichs, Mdse. pkgs., 2
Mason John W. & Co. Wire rope, coils, 8
Merchants' Dispatch Co. Cases, 5
Putnam G. P. Sons, Chains, cks., 51
Peters Bros. Mdse. pkgs., 2
Robinson C. & Sons, Cases, 2
Roosevelt S. & Co. Chains, cks., 23
Schmidts Wm. Saws, pkgs., 1
Schoverling & Daly, Guns, cs., 3
Thompson, Langdon & Co. Cases, 5
Tillotson L. G. & Co. Wire, lots, 509
Van Wart & McCoy, Packages, 6
Waefalaer & Duyster, Hook nails, cks., 47
Wiebusch F. Mdse. pkgs., 15
Order. Chains, cks., 43 Anvils, 9 Casks, 3 Wire rods, bdls., 20 Cases, 4

Iron.

Bruce & Cook, Sheet, bdls., 881
Congreve Chas. & Son, Rails, 541
Clark & Co. Bars, 303 Hoop, bdls., 60
Henderson Bros. Pig, tons, 100
Kelly Robt. E. Scrap, lots, 1
Lennox D. S. Bale ties, lots, 90
Laughland & Co. Hay bands, bdls., 1200
Lang W. Bailey & Co. Rails, 488
Mitander Nils, Bars, 181
Morton, Bliss & Co. Rails, 864
Naylor & Co. Rails, 2218 Bars, 250 Fish plates, bdls., 1121
Owens A. Cases, 1
Phelps, Bloom & Brown, Cases, 2
Rammelsburg Chas. Sheet, pkgs., 2000
Robbins C. & Son, Boxes, 36
Speyer Bros. Bundles, 2251
Tillotson L. G. & Co. Lots, 256
Wheeler E. S. Bundles, 198
Order. Cases, 33 Sheet, pkgs., 49 Boxes, 1 Railroad bars, 826 Anchors, 2 Pig, tons, 10 Hoop, bdls., 230 Castings, cks., 4 Sheet, bdls., 310

Steel.

Clark & Co. Cases, 25
Hogan John, Cases, 20
Moore Henry, Casks, 11 Cases, 16 Bundles, 23
Naylor & Co. Sheet, cs., 2 Bar, cs., 20 Rails, 881
Prosser Thos. & Son, Mdse. pkgs., 32
Pierson & Co. Bundles, 226
Sanderson Geo. & Co. Bundles, 52 Cases, 5
Order. Bundles, 613 Bessemer rods, bdls., 187 Cases, 3 Barrels, 204

Metals.

Baring Bros. Tin, slabs, 519
Byrne Joseph, Tin plates, bxs., 2517 Refined tin blocks, 27
Bertschmann J. Tin, slabs, 650
Barnstaff & Co. Scrap, copper, bxs., 3
Goodwin, Rice & Erwin, Terne plates, bxs, 521
Phelps, Dodge & Co. Tin plates, bxs., 4837 Mdse. pkgs., 3
Naylor & Co. Tin plates, bxs., 702
Rammelsberg Chas. Sheet zinc, cks., 187 Lead, blocks, 930
Visser Simon de Tin, slabs, 615
Order. Tin, slabs, 1716 Lead, cks., 1 Tin and terne plates, bxs., 12,632 Zinc, plates, 12,480

PHILADELPHIA.

PHILADELPHIA, Sept. 22, 1874.

There is no change to note either in the price of iron or in the volume of business done. Pig Metal is quiet, the principal business being in Forge Irons, with somewhat greater inquiry for Foundries, for deliveries near to close of navigation. The condition of trade east of the mountains and on the seaboard seems decidedly worse than it is West and South, as while the mills and such furnaces as are in blast there are disposing of their product, if even at low rates, here this is not the case as a rule. The only indications of improvement in the iron trade come to us from England, where better prospects promise the steady employment of labor, at good prices, which creates a demand for American breadstuffs, cotton and pork, and enables our producers of these articles to purchase iron here. A circuitous method of increasing home trade, but the only one likely to give any immediate good results. In Manufactured Irons the Bar mills are fairly occupied, but not busy, some having received more orders of late. The sheet mills are generally busy at fair prices, and plate mills the same. Rails continue steady without material improvement, except in Steel for which there is more demand. Old Rails are abundant, and prices weaker, which may also be said of Scrap. Prices are continued from week to week with scarcely any variation to note. Producers, as a rule, are firm in their views, not being necessitous of money, and consumers very conservative in purchases from the paucity of orders. We quote:

PIG METAL.—No. 1 Foundry, $30 to $31; No. 2, $27 to $29; Gray Forge, $26 to $27; White and Mottled, $23 to 24.

MANUFACTURED IRON.—Bars, 3 cents per pound.

RAILS.—$57 to $60 for American, at mill, as to section.

OLD RAILS.—$32 to $34.

SCRAP.—$34 to $36, as to selections, for No. 1 Wrought.

The sales include, in addition to some tolerable lots of Forge Pig on private terms, 2000 tons No. 2 Foundry, Lehigh brand, at $26·50, spot; 750 tons No. 2 do. on private terms; 1000 tons White Mill Iron, low grade, at $22. Rails, 3000 tons from Western mill at $61; 3000 tons on private terms; 1500 tons 56 lbs. at $58, cash, at mill. Old Rails, 2000 tons, equal to $31 here; 400 tons for Eastern delivery at $32. Scrap, 600 tons No. 1 Wrought to Eastern Forge, at $36, delivered, with sales at $34 here.

PITTSBURGH.

PITTSBURGH, Sept. 21, 1874.

PIG IRON.—The general position of the market has not varied much for several weeks, and, furthermore, the indications just now are that it will continue in its present condition for several weeks to come. The mills have nearly all adopted the policy of buying only for immediate wants, from which it is to be inferred that they do not anticipate any advance in prices, otherwise a different course would be pursued; and, on the contrary, but few of them (the mill men) anticipate any decline. While the general tone and spirit of the market is, if anything, weaker than it was a month ago, and prices are a shade lower, the general impression among operators is that prices will not fluctuate much during the balance of the year; and this accounts for the fact that there is but comparatively little doing, as consumers can see no object in carrying large stocks. While the outlook, so far as the producing interest is concerned, is not to say very encouraging, as current rates afford no margin for profit, and there is but little prospects of an advance, yet it is not probable, and there is some comfort in it, that it will become any worse—that when there is a change it will be for the better. Some producers are still hopeful that there will be an improvement between now and the close of the year, that the demand will be larger than is expected, and then the fact that the production has been very much curtailed is not without its effect in stimulating these hopes. And another point to be taken into consideration in this connection is that the cost of production may be still further reduced.

QUOTATIONS.

No. 1 Foundry	$29·00 @ 30·00—4 mos.
No. 2 Foundry	27·00 @ 28·00—4 mos.
Gray Forge	26·00 @ 26·50—4 mos
White and Mottled	24·00 @ 25·00—4 mos.
Cold Blast Charcoal	45·00 @ 50·00—4 mos.
Hot Blast Charcoal	30·00 @ 35 00—4 mos.

MANUFACTURED IRON.

There is but little that is really new to report in regard to the market for Finished Irons, excepting that the outlook is improving. That the recent advance made here is being maintained is evident from the fact that a corresponding advance has been made by jobbers in the West; Chicago did not do so until within the past few days, the trade there, apparently, having determined to wait long enough to find this out. That the advance has checked orders somewhat is admitted, but this was not unexpected; however, the mills are pretty well supplied with orders, the best evidence of which is that they are all, or nearly so, running double turn, and no doubt is entertained but by the time old orders are worked up new ones will have commenced to come in pretty freely again. Stocks here are small, as the mills have been working on orders ever since the panic, and it appears to be their policy not to accumulate, although the fact is they have had no chance to do so.

NAILS.—The Nail trade continues unsatisfactory, so far at least as the producing interest is concerned; not so much in regard to orders, which are coming pretty freely, but it is complained that present card rates afford no margin for profit. Manufacturers knew very well at the time rates were established that they would afford little or no margin, but it was deemed best, in view of the unsettled and unsatisfactory condition of business generally, to start out low, with the understanding that an advance should be made as soon as the market would justify it. The probability, therefore, is that there will be an advance before long, as orders are coming in pretty freely, and makers do not relish the idea of being obliged, as the saying is, to work for nothing.

STEEL.—The Steel trade continues fairly active. All the mills are in operation. Some are sold considerably ahead of their production, but it is complained that there has been a good deal of "cutting" recently, the result of which is that prices are away down below the card, and much lower than there is any necessity for. It is probable that a meeting of the Steel manufacturers will take place at an early day, and a schedule of prices agreed upon, as it is very desirable to have established rates, even if they should not be advanced. As it is at present, the card is a dead letter. At the Black Diamond Steel Works, of Park Bro. & Co., last week, the largest plate of Steel ever rolled in this city, or perhaps in the country, was accomplished. The plate was homogeneous Steel of the following dimensions: length, 180 inches; thickness, ¾ of an inch; width, 53 inches; weight, 2700 pounds.

SCRAP IRON.—The Scrap trade continues very dull, and while hopes of an early change for the better are entertained, the prospects at this writing are not very encouraging. Prices are nominally unchanged as follows:

	Per ton, cash.
No. 1 Railroad Car Springs	$47·00
Old Buggy Springs	40·00
Old Car Axles	38·00
Old Railroad Scrap	30·00
Old Blacksmith Scrap	26·00
Light Iron	15·00
Old Railroad Wrought Turnings	25·00
Stove Plate	15·00
Machinery Metal	18·00
	Per gross ton.
Old Car Wheels	$28·00

WINDOW GLASS.—Nearly all the factories have started up, and while it is not to say active, it is all that can reasonably be expected. Discounts unchanged at 60 to 65 per cent. off Pittsburgh list.

The Pittsburgh *Commercial* of the 19th inst. says: We have to report another dull week in the Iron market. There is no change to report in prices from those of last week. The makers of Pig Iron have been in hopes that the action of the Iron Manufacturers' Association at their meeting last week would have the effect of increasing the demand, and, perhaps, advance prices; but as yet we can see no change in the market. We are reported the following sales:

BITUMINOUS COAL SMELTED FROM LAKE SUPERIOR ORE.

500 tons gray forge, p. t.	$36 50—4 mos.
200 tons gray forge	36·50—4 mos.
150 tons white and mottled	34·00—4 mos.
100 tons close gray forge	36·50—4 mos.
100 tons mill iron	36·50—4 mos.
100 tons white and mottled	25·00—4 mos.
100 tons mottled	25·00—4 mos.
50 tons white and mottled	34·00—4 mos.
50 tons open forge	26 00—cash.
40 tons No. 1 foundry	28·00—4 mos.
30 tons No. 1 foundry, extra	29·00—4 mos.
50 tons No. 2 foundry	28·00—4 mos.
20 tons No. 2 foundry	27·00—4 mos.
20 tons No. 2 foundry	27·00—4 mos.

HANGING ROCK CHARCOAL.

100 tons mill iron	$31·00—4 mos.
30 tons No. 1 foundry	$36·00 @ 37·00—4 mos.
15 tons No. 2 foundry	34·00—4 mos.
10 tons No. 2 foundry	33·00—4 mos.

ANTHRACITE.

50 tons cold short forge	24·00—4 mos.

CLEVELAND.

Messrs. READ & DICKEY, Iron Brokers, under date of September 21, write us as follows:

PIG IRON.—The market for the past week has been very dull and spiritless, with nothing of note doing. Prices are weaker, if anything, but in the absence of demand there is no change to report in quotations. Mills still pursue the "hand-to-mouth" policy, and are justified by past experience in so doing. At the low price at which good charcoal Bessemer Metal is being sold, it is expected that considerable of it will change hands, as it is, no doubt, a good speculation. It is expected, also, that Bessemer works will feel the first return of railroad business earlier than any other branch of the trade, and that consequently there will be a market for Pig Iron suited to their wants before long. The purchase made here two weeks since by the Cambria Company is looked upon as the harbinger of a revival in the trade, the more as other companies are making inquiries. Quotations are nominally as follows:

CHARCOAL PIG IRON FROM L. S. ORE.

Nos. 1 and 2 Foundry	$33·00—4 m.
Nos. 3 and 4 Car Wheel	34·00—4 m.
Nos. 5 and 6	35·00—4 m.
Bessemer Metal, Charcoal	32·00—4 m.
Bessemer Metal, Bituminous	28·00—4 m.

BITUMINOUS PIG IRON FROM L. S. ORE.

No. 1 Foundry	$29·00—4 m.
No 2 Foundry	27·00—4 m.
No. 1 Gray Forge Red Short	27·00—4 m.
No. 2 Gray Forge	26·00—4 m.
White and Mottled	24·00—4 m.

PIG IRON FROM BLACK BAND ORES.

Massillon No. 1	$33·00—4 m.
Massillon No. 2	31·00—4 m.
"New Gartsherrie" No. 2	33·00—4 m.
Muck Bar	$45·00—60 days.

MANUFACTURED IRON.—In Bars there is no new business doing from the mills, as purchasers are not anxious to buy at the advance. There are still some mills who, having worked up their orders, are disposed to make concessions to buyers for round lots. The demand from the Eastern States has fallen off very much, although the Pittsburgh meeting did not include that section when advancing the price. Orders to Eastern merchants, and on their card, can be bought at as favorable rates to purchasers as at any time within the past two months, but as no sales can be made without buyers, we hear of no transactions. At the present writing, appearances are not favorable to the prospect of the advance being sustained. The fall trade, so much counted on for improving demand, prices, &c., is slow to put in an appearance, and the opinion that we must wait until after winter has passed before looking for any material improvement in the trade is daily gaining supporters. We learn of the suspension of a large Iron house in Chicago, hitherto supposed to be one of the strongest in the Northwest. If their failure is to be followed by others, it is doubtful if the Iron trade has yet got over the panic.

SHEET IRON.—The trade in Sheets is proportionally better than Bars, &c., but as this is the season when two-thirds of the production changes hands, there is nothing remarkable about this branch being at present active. Prices have improved, but are not up to the card as established.

NAILS—Are doing better since the adoption of a uniform price, but there is but small encouragement to the manufacturers at present rates. The demand for Nails ought to be very good at this time, and will no doubt improve before the advent of cold weather. Prices from store here in car lots are as follows:

	60 days.
Bar, Band and Hoop Iron	2·8
Sheet Iron, No. 24	4·8
Nails, 10d. to 60d	$3·50
Ship Spikes, ¾ and larger	4·20

BALTIMORE.

Messrs. WYETH & BROTHER, Iron and Steel merchants, South Charles and Lombard streets, report us the following prices under date of Sept. 22: Trade still assumes a quiet aspect, and dealers have scarcely orders sufficient to keep their teams in motion, and there are evidences that before long, if matters do not improve, there will be still more anxiety for business. We quote the market quiet, with unchanged list.

AMERICAN REFINED BAR IRON.

1 to 6 wide by ⅜ to 1 thick	2·9 to 3·1 cts. per lb.
1 to 4½ wide by 1¼ to 2 thick	
Round and square, ordinary sizes, from ¾ to 2 inclusive	2 9-10 to 3 1-10c. "
Hoop Iron, 1½ wide and upward	4¼ to 5c. "
Band Iron, from 1¼ to 4 in. wide	4 to 4¼c. "
Horse Shoe Iron ¾ to 1 wide by ⅜ to ½ thick	4¼ to 5c. "
Norway Nail Rods	7¾ to 8¼c. "
Black Diamond Cast Steel, Flats, Squares and Octagon, ordinary sizes	16½c. "
Machinery Steel	11½c. "
Cast Spring Steel	11c. "
Homogeneous Steel Plate	13c. "
Perkins' Horse Shoes, per keg of 100 lbs	$5·87½
" Mule Shoes " "	6·87½

Common Horse Nails, from 14c. to 18c. per pound.

	10	9	8	7	6	
Putnam Horse Nails	23	24	25	26	28c.	per lb.
	10	9	8	7	6	
Globe Horse Nails	23	24	25	26	28c.	per lb.

R. R. Spikes 5¾ by 9-16 at 3¾c to 4c. per lb.

CINCINNATI.

Messrs. ADDY, HULL & CO., under date of Sept. 19th, write us as follows: The feeling of confidence noted in our last seems to continue. There has been a fair demand for Iron during the past week. Prices continue without change. Many of the mills in this section, which have been closed for months, are now resuming work. We look for an improving trade in the future.

HOT BLAST CHARCOAL.

Hanging Rock No. 1	$33·00 @ 34·00—4 mos.
" " No. 2	30·00 @ 32·00—4 mos.
" " Forge	27·00 @ 29·00—4 mos.
Tennessee No. 1	32·00 @ 33·00—4 mos.
" Forge	27·00 @ 29·00—4 mos.
Alabama No. 1	31·00 @ 32·00—4 mos.
Missouri No. 1	33·00 @ 34·00—4 mos.
" No. 2	30·00 @ 32·00—4 mos.

HOT BLAST STONE COAL.

Missouri No. 1	$32·00 @ 33·00—4 mos.
" Forge	27·00 @ 29·00—4 mos.
Ohio No. 1	30·00 @ 31·00—4 mos.
" Forge	27·00 @ 28·00—4 mos.
Scotch Pig, No. 1	

COLD BLAST CHARCOAL.

Hanging Rock Car Wheel	$50·00 @ 55·00—4 mos.
Missouri " "	48·00 @ 52·00—4 mos.
Kentucky " "	50·00 @ 55·00—4 mos.
Tennessee " "	48·00 @ 52·00—4 mos.
Georgia " "	48·00 @ 52·00—4 mos.
Alabama " "	48·00 @ 52·00—4 mos.
Machinery and Forge	45·00 @ 48·00—4 mos
Blooms	90·00 @ 95·00—4 mos.

LOUISVILLE.

Mr. GEO. H. HULL, under date of Sept. 21, writes us as follows: The market remains about the same as at last report. Cold Blast Irons are neglected, and quotations for this class must be regarded as nominal. The demand for Hot Blast is light, and prices are without material change. The usual time, 4 mos., is allowed on the quotations below:

HOT BLAST CHARCOAL.

No. 1 F'dry, from Hanging Rock Ores	$32·00 @ 34·00
" 2 " " " "	29·00 @ 30·00
" 1 Forge, " " " "	27·00 @ 28·00
" 1 F'dry, from Tennessee Ores	30·00 @ 32·00
" 2 " " "	28·00 @ 29·00
" 1 Forge, " "	26·00 @ 28·00
" 1 F'dry, from Alabama Ores	30·00 @ 32·00
" 1 " " Iron Mountain Ores	32·00 @ 34·00

HOT BLAST STONE COAL.

No. 1 F dry, from Missouri Ores	33·00 @ 34·00
" 2 " " "	30·00 @ 31·00
" 1 Forge, " " "	29·00 @ 30·00

COLD BLAST CHARCOAL.

Car Wheel from Hanging Rock Ores	50·00 @ 55·00
" " Tennessee Ores	46·00 @ 48·00
" " Alabama Ores	48·00 @ 50·00
" " Georgia Ores	48·00 @ 50·00
" " Missouri Ores	45·00 @ 48·00
" " Kentucky	48·00 @ 50·00

BOSTON.

BOSTON, Sept. 19.—*Pig* continues very dull, and lots of good No. 1 American are freely offering at from $27 to $34 per ton on wharf. There is no disguising the fact that this week iron is lower than it has been at any time, and there does not seem to be any especial encouraging prospect of a material improvement. The reports from Pennsylvania and Missouri are not very flattering, while two or three New Jersey blast furnace men canvassing our market collect no flattering results. In this state of affairs the fancy brands, and the reputation of makers of pig iron are lost in the multiplicity of new names and heretofore unknown brands, which in quality of softness and strength are pitting against the old favorites on a guarantee and at a much lower price. In fact the anxiety of some holders to sell has placed prices in this market below those at the producing points, and given all quotations a nominal condition—where this will end the next four or six weeks must determine. *Bar* is selling out of store in small quantities at $64·50 @ $65·00 per ton, the highest rate being 3c. per lb. or $67·50. This, as previously shown, is below the Pittsburgh markets. The Pickwickian resolutions of the Chicago dealers have been the source of much amusement, as Boston drummers are at this moment unable to compete with that market in low prices, even at the somewhat demoralized point we quote as our selling rates. *Copper* is firmer at the last advance. We quote Ingot at 21c., cash. Sheathing, 33c.; Yellow Metal, 23c. *Lead* is firm and quiet We quote Sheet and Pipe 7¾c., currency; Tin Lined Pipe, 16½c.; Bar Lead, 7¾c., less usual trade discount; Pig, 7½c. for Foreign, gold, and 6c., currency, for Domestic. *Spelter* is easy. American, 6¾c., currency. *Tin* is dull. Straits, 22½c.; Banca at 25¾c., gold, 30 days; Refined English, 22c., gold; Charcoal I. C., $11·25 @ $12·50; Coke, $9 to $10; and Terne at $8·50 to $12·50 per box, currency.—*Com. Bulletin.*

FOREIGN.

FRANCE.

(Moniteur des Interets Materiels.)

PARIS, Sept. 6, 1874.—*Metals.*—While admitting that an improved demand has of late been prevailing in the European metal markets, it must be confessed that it has not altogether come up to the expectations that had been formed, so far as the inquiry for legitimate consumption is concerned, whereas most of the business transacted has been of a speculative character, thus multiplying fluctuations, the very thing which is least desirable to the *bona fide* consumer. And the speculators for a rise seem to have chosen a highly inopportune moment, inasmuch as the movement is evidently premature, because of the slowness with which the general metal trade revives after the year's trial it has undergone. They ought not to lose sight of the fact that the losses in the early part of the year have been both severe and widespread, and that the trade requires time to recover from sacrifices forced upon them by a sweeping depreciation of metal values. It may take what remains of the current year to reconstitute the European metal trade upon a sound basis. While such is the actual state of affairs, we are told that prices are considerably below the figures which inaugurated the present year, and that they are calculated to inspire confidence. We readily grant that they are not high, but it will have to be confessed that they were decidedly so, and almost prohibitive, on the 1st of January; that consequently the subsequent decline was nothing but the natural tendency to seek the level of a sounder basis. There has been a further slight rise in the *Copper* market on the other side of the Channel, especially in Chili Bars, leading to quite extensive transactions there in this species early in the week. The Copper markets of France have been steady at the following quotations: Chili bars, deliverable at Havre, 203·75 francs; Common do., 198·75; Ingots, 217·50; Tough Cake, 210; and pure Corocoro Ore, 200. Pure Peruvian Mineral at Havre, 200; Chili bars there, 195 to 200; Lake Superior, 220; and old Copper, 200. Refined Chili Ingots, at Marseilles, 220; Copper Sheathing, 245; Yellow Metal do., 220 francs. There have been steady and extensive deliveries in the European *Tin* markets during the month of August, and a firmer feeling, and rather an upward tendency has resulted therefrom thus far this month, while August wound up dull. Our own domestic markets have been tolerably well supported as follows: Banca, deliverable at either Paris or Havre, 252·50 francs; English and French, 245; and Straits, 242·50; Banca, at Marseilles, 255; English and French, 265; and Straits, 250. *Lead.*—A steady feeling has prevailed in the European Lead market, and the tendency has, on the whole, been an improving one, with a fair degree of activity in Spanish. Sheet Lead has been in brisk demand, with higher prices insisted upon. The French markets have borne up well at 53 francs all round, here and at Havre, and 54 at Marseilles. *Spelter.*—Stocks are running down to a low ebb, being reduced to but 161 tons at London; the greatest amount of activity has been observable in the German markets, while there has been less doing in England and France. Paris and Havre are tolerably well sustained at between 57 and 58 francs. *Iron.*—The French Iron trade is by no means dissatified with the turn business has been taking for some time past; although prosperity has not fully returned among us, we have been getting on tolerably well, and are able to record an improvement. Orders are dropping in to a fair extent, work is well distributed, and prices are firm, sufficiently so to produce a rise as we proceed. Pig Iron is well supported, and Charcoal, from 120, gradually rises to 130. Finished Iron here commands 240 francs, prime quality, and Sheet, 330. Architectural Iron is in good request, building being brisk. Considerable savings have accumulated among our people during the past year or two, and these hoards have, to a certain degree, been returned to circulation quite recently, as the political horizon became less threatening. Iron Rails cannot be got below 240, while Steel Rails are firm at 300 to 330. Scrap Iron is wanted at 140 francs. Coal remains quiet and uninfluenced by the slight rise in Belgium.

BELGIUM.

(Le Commerce.)

BRUSSELS, Sept. 5, 1874.—*Iron.*—There has been more cheerfulness and steadiness, as shown at the latest opening of tenders, when the extremes for Old Rails ranged between 103½ and 108 francs. While on 'change the general tone was a quiet one, and the aggregate dealings were but restricted, small orders have been quite plentiful. Our older lines of railways are for the present well stocked with rolling material, and, on the whole, fully equipped with repair shops of their own, while few new lines are under construction, hence but a limited business is done in that direction. Some business might now be done with France, but for the high import duty, which partially excludes our Iron manufactures, and the comparatively high cost of transportation. We are more favorably situated in this respect as regards our export to Germany, where our Iron industry competes to advantage, while in the matter of Steel we find it less easy to compete with our German neighbors. *Coal.*—A good demand for common Coal is developing in the Belgian markets. Greasy Coal is also firm at 17 to 18 francs for mixed, while Coke is held at 15. A good deal of activity prevails at Charleroi, while Liege is comparatively quiet. Orders for the winter are dropping in by degrees, and the outlook for October and November is, if anything, cheerful.

GERMANY.

(Borsenhalle.)

HAMBURG, Sept. 4, 1874.—*Copper.*—The German markets have been moderately active and steady at the following quotations: Berlin, Swedish, 28¼ to 29 thalers; English, 25¾ to 29½; Chili Refined, 28 to 28¾, and Mansfield, ditto., 39¾; Hamburgh, Swedish and Norwegian, 89; Lake Superior, 88; Best Selected English, 88, and Yellow Metal, 81 marks; Stettin, all sorts, 29 to 32 thalers. *Tin*, from a drooping attitude toward the close of August, has recovered greater firmness. We quote: Berlin, Banca, 35 to 35½; Straits, 34½, and English, 33¾ to 34¼ thalers; Hamburg, Banca, 1·08 marks; English, 1·06 to 1·08; Stettin, Banca, 36 thalers. *Lead* remains firm at the various centers in Germany at the following quotations: Berlin, Tarnowitz, Freiberg and Clausthal, 7¼ to 7¾ thalers; Spanish, 8¼; Hamburg, English and German, 23·50 to 24·50 marks, and Spanish, 25; Stettin, Spanish and Tarnowitz, 7¾ to 8¼ thalers. *Spelter* is active and fully sustained at the recent improvement at the following places and quotations: at Berlin, W. H., 7¾ to 8¾; medium brands, 7 to 7¾; Silesian, 7¾ to 8 thalers; Breslau, common, 6¾, and W. H., 6¾ thalers; Stettin, 7½ to 8 thalers for Silesian; Hamburg Silesian, spot, 22·20 to 22·30 marks, and futures 22 to 22·20.

HOLLAND.

(Erers & Co.)

ROTTERDAM, Sept. 5, 1874.—*Tin.*—The market is quiet. Banca on the spot has been paid 57 and 57¾ guilders the 50 kilos, delivery from this month's sale 56, and Billiton, October delivery, 54½. Banca deliveries by the trading society in Aug., 18,382 slabs against 6400 in 1873; total for the season, 94,554 against 87,519; stock on warrants but 10,676 against 22,056; unsold stock Aug. 31, 142,679 against 133,837; afloat, 2430 piculs against 14,700; season's deliveries of Billiton 2967 against 1831; stock on warrants, 200 against 100; unsold stock, 2956. Private Billiton stock 23,200 slabs, against 15,803 in 1872.

EAST INDIES.

(Schmidt, Kusterman & Co.)

PENANG, July 27, 1874.—*Tin.*—The market opened with purchases for China at $25 per picul for unsmelted, but prices subsequently receded to $24·65 to $24·50 per picul; the bulk of the business was done at $24·65 per picul for unsmelted. Shortly afterward a better demand set in, which caused rates to rise as high as $24·75 per picul for unsmelted; the last transactions for shipment to Europe took place at $24·60 per picul, and there is now some speculative demand at $24·75. The stock in the Bazaar is estimated 3000 piculs.

(Gilfillan, Wood & Co.)

SINGAPORE, July 24, 1874.—*Tin* has given way but slightly, and cannot be bought under $25⅛ to $25⅛ per picul; supplies have been moderate. The John Worster, for New York, has cleared, having on board 1885 piculs Tin. Exchange has declined, and we quote the same 4/2¼ this day.

(Aitken, Spence & Co.)

COLOMBO (Ceylon), Aug. 8, 1874.—*Plumbago.*—Our market is extremely dull, with little inquiry from the United States and England. There is a small demand for Dust, at a little below current rates, for the United States. Existing supplies are small, and dealers assert that there is no inducement to mine at current values. The Dorothy has been put on the birth for New York. Exchange has been weak and downward at 1/10 9-16 to 1/10 13-16. We quote Lump, 336/ per ton, free on board, with commission, exchange at par, freight to New York 75/ per 20 cwt.; Chips, 199/6, and Dust, 115/6. The market closes very quiet. Total shipments to date to the United States, 31,410 cwts., against 92 558 in 1873; to England this season, 108,953; to all quarters this year, 142,899 cwts.

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.)

SHEFFIELD, Eng., Sept. 7, 1874.

THE IRON AND STEEL INSTITUTE

has had a very numerously attended and successful autumnal session at Barrow-in-Furness. The papers read have been of the usual practical and interesting description, as you will perceive from certain of your English exchanges. There were fully 350 members present—an influx of well-to-do visitors of which the hotel keeping and lodging house fraternity did not fail to take to some little account, inasmuch as beds were "quoted" as high as a guinea per night. Although nominally beginning on the Tuesday, the real business of the meeting did not commence until the following day. After some formal announcements, Mr. P. Wursburger, of Dalton-in-Furness, read a paper on the West Coast Iron Ore Districts' Geology, after which came a number of valuable papers relating to subjects of interest to the assembly. On the Thursday Mr. Lyman Holley, of New York, read a well composed paper on American Rolling Mills, in which he described the mode of constructing your rail mills, and the buildings, beside illustrating the new Edgar Thomson Steel Works, near Pittsburgh, and the most important features of American roll trains, as shown by the drawings of Mr. John Fritz, Bethlehem Iron Works Mr. Holley next read his paper on setting Bessemer Converter Bottoms. The remainder of the useful literary contributions to the practice of the iron trade, afforded by this meeting, you will no doubt reproduce as early as convenience will permit. The session terminated on the Friday, after several of the leading district iron and steel works had been visited. The great works of the Barrow Hematite Steel Company, of course, attracted most attention.

THE BARROW STEEL WORKS

are the largest Bessemer steel works in England. The *Engineer* thus describes them: "The works of the Barrow Hematite Iron and Steel Company, which were visited this week by the whole of the members of the Iron and Steel Institute who were present at the meeting in that town, are in some respects unique. There are altogether sixteen blast furnaces, fourteen of which are built in a single row, while the remaining two are distant about half a mile. The weekly production of the blast furnaces averages 5500 to 6000 tons; but it is always calculated that two or three furnaces are out for alteration or repairs. The average hight of the furnaces is about 63 ft., some of them being 62 ft., and others 65 ft. high. The first furnaces, built in 1859, were only 45 ft. high, but these furnaces have recently been raised to 62 ft. The average consumption of fuel is one ton of coke per ton of pig iron made. The ore, which is obtained at the company's own Park Mines, near Ulverston, averages 60 per cent. of metal, so that less than two tons of it are sufficient for a ton of iron. The consumption of limestone is about 9 cwt. per ton of iron made. The blast is heated to a temperature of 900 deg. to 1100 deg., according to the quality of the iron required. Each furnace is fitted with six tuyeres, the diameter of the nozzles being 3½ in. to 4 in. The larger furnaces have a bosh of 20 ft. diameter, and the smaller ones a bosh of 19 ft. The blast is heated partly by Cowper's and partly by Gjers' stoves. The engines that blow the blast are, perhaps, the most remarkable feature of the iron works. There are three beam and eighteen grasshopper engines. Of the latter kind, not less than ten are in one engine house, which is said to be the largest engine house in the world. With the exception of the buildings that contain the beam engines, all the engine houses are built parallel with the blast furnaces, on the contrary side from the pig beds. The beam engines have double-acting high pressure steam cylinders, 48 in. diameter and 9 ft. stroke, the blowing cylinder being 72 in. diameter. The hoists are inclined planes, and are worked by special engines, there being a separate engine for each of the six inclines that are attached to the fourteen furnaces. The hoist engines are of the ordinary reversing kind, worked by frictional gearing. The drum is 12 ft. diameter, and the cylinders of the engines are 16 in., with 2 ft. length of stroke. Most of the engines have been made

by Perry & Sons, of Bilston. All the furnaces are fitted up with the bell and hopper apparatus, with a view to the utilization of the waste gasses, which are sufficient to supply all the heaters and boilers without any fuel. The blast furnaces are distant about 200 yards from the steel works, the intervening space being occupied by sidings and filling sheds, and a spacious cast iron bridge spanning the whole of these sidings connects the one department with the other. There is not a single turnstile about the works. All the laden trams pass up one of the sidings—for they enter and leave at the same end—until they are shunted on to the down main line, when they empty their contents into the pit attached to the filling sheds and pass through to take their departure again. The steel works are in three large bays or roofs, each 35 ft. between the principals, and 700 ft. in length. The pig iron on being brought from the blast furnaces is stored here in rather a peculiar manner; the first cast of the week is put down in a row of perhaps 150 to 200 yards in length, and the next day's cast is placed atop of the first day's and so on until the end of the week, when the pigs are cleared from top to bottom of the heap, thus giving a week's average of the iron, and preserving a uniform consistency and quality of steel. The productive capacity of the steel works is 3500 tons per week. Rails constitute the principal branch of manufacture, there being three large rail mills, one plate mill, and one smaller mill for merchant steel. The ingots are cast in groups of eight with one "get" at the end; and they are stoppered down before the cast is begun. The arrangement adopted here is not a new one. Several firms have tried it before, but with little success. The secret of the success of the Barrow Company consist in a peculiar arrangement, by means of which stiffness is readily secured. There are eighteen converters at work, and twelve steam hammers by John Musgrave & Sons, of Bolton. One of the rail mills is driven by a Ramsbottom reversing engine. The other two rail mills are worked on the three-high principle, and are actuated by beam engines, supplied by Hicks, of Bolton; while an ordinary horizontal engine, with a 40 in. cylinder, actuates the merchant mill. The total engine-power of the works is equal to that of 4000 horses. Most of the boilers are of the ordinary Cornish pattern, but there are also thirteen of Howard's patent boilers fired by Vicar's mechanical appliance. The coke used in the works is chiefly obtained from South Durham, but the company have arranged to open out collieries of their own in South Wales and in the Barnsley district."

OTHER WEST COAST MINES AND WORKS.

By a special train on the Friday the members of the Institute—including, also, such visitors as M. Schneider, M. D'Audrimont (Liege), &c.—visited several of the leading mines, furnaces and works of what may be termed the hematite district. After leaving Millom, the train proceeded by Sellarfield Junction and Egremont to to the rich Cleator district, where the first blast furnaces to smelt the native ore were erected. The first stoppage was at Mr. Stirling's Montreal Mines. The first mine visited was one where a portion of the roof had fallen in over one of the "drives," exposing a seam of blast ore at least forty feet thick. Here the men were at work, and many of the visitors carried away beautiful specimens of the ore, including a number of pieces of fine kidney ore. Mr. Crossfield's No. 1 mine, which adjoins, was next visited. This mine is being worked by an adit, and here the miners were working ore yielding from 60 to 70 per cent. of iron. The party then proceeded to the offices of the Montreal works, where refreshments were provided and specimens of ore exhibited. A sectional drawing of the Montreal Mine was also shown, and from this it was seen that extensive iron ore deposits lie within a distance of one hundred yards of several seams of good coal, varying in thickness from two to six feet. This coal seam has not been worked, however, inasmuch as it is thought that the working would interfere with the ore mines.

After leaving the Montreal Mines, the excursionists proceeded to Workington, and in passing the Cleator Moor Iron Works the train was stopped for a few minutes to enable the party to see these works from the line. On arrival at Workington a portion of the party remained to visit the iron works there, while the remainder went on to Maryport. At Workington the West Cumberland Hematite Iron Works were visited. The works employ 2500 hands. There are five blast furnaces, two of them being of very recent erection, and the others dating as far back as 1860, and large steel works, beside which the company work their own colliery. At Clifton, about six miles from Workington, there are five blast furnaces 65 feet in hight by 25 feet diameter, and they are capable of producing in the aggregate about 1600 tons of pig iron per week. The steel works contain four Bessemer converters capable of producing 600 or 700 tons of steel per week. The works are about half a mile in length, and are used for manufacturing both steel rails and steel plates. Rails are the speciality of the works, and the rail mill, which is separate from the cogging mill, is said to be capable of producing from 1000 to 1200 tons of rails per week. The Solway Firth bounds the western side of the works, and gives a port for the export of the finished iron and a bed for the slag which is tipped over the embankment into the sea. The mechanical arrangements seem to be modern, and of a very superior kind. The party saw the supplying of one of the Bessemer converters. The molten steel was run into solid molds, which were lined with lime to prevent adhesion. The steel ingots were afterward carried to the rolls, where they were rolled out into two-length rails. The rails were then carried to a circular saw, where the crop ends were cut off. At Maryport the works of the Solway Hematite Iron Company were first visited. In the engine house are two engines, made by Barclay & Co., Kilmarnock, each of which is of 120 horse-power. The cylinders are of 8 ft. diameter, and the fly-wheels of 30 ft. diameter. The company have four furnaces, but only two were in blast, owing to the depression in the trade of the district at this time. It may be here stated that in some other places visited, several of the furnaces, from the same causes, were not in blast; but it is satisfactory to know that trade is now likely to revive. At the Solway Works about 150 men are employed, and the ore used is from West Cumberland. The Maryport Hematite Company's works were next visited. Here there are about 200 men employed. There are three large engines by Barclay, and six furnaces, only three of which were in blast. Upon the return of the train to Workington, the party that remained there were picked up, and the train proceeded to Whitehaven, but a short delay occurred before the passengers took their seats, owing to the last carriage having left the metals. In passing the Moss Bay Hematite Iron Works, the Harrington Hematite Iron Works, and the Lonsdale Hematite Iron Works, speed was slackened to enable the excursionists to view the works.

THE SCOTCH PIG IRON MARKET.

Shortly after my last letter was dispatched the dull tone of the warrant market was dissipated by the strike of the Fife and Clackmannan miners, and the hopes of those who had relied upon a fall resulting from the increased production were disappointed. During the latter part of last week prices were fairly firm at 81/ to 82/, but at the close of Friday's business there was a slight lapse. It will not be very surprising should this lull assume a more decided tone in the course of the next few days. There are now 112 furnaces in blast out of the total 156. Freights are mainly unchanged. Writing on Sept. 8th, Messrs. Wm. Colvin & Co. (Glasgow), said: The warrant market continued quiet on Wednesday and Thursday last, and on latter date the price touched 79/3. Since then the tone has been much firmer, and a fair business was done from 80/ up to 83/, which was the closing price yesterday afternoon. To-day there was a large business done betwixt 83/6 and 84/6, from which point a smart reaction took place to 82/9, closing with buyers offering that price. Undernoted are quotations for makers' iron.

	Deliverable alongside. No. 1.	No. 3.
G. M. B., at Glasgow	87/6	78/
Gartsherrie, "	110/	84/
Coltness, "	107/6	85/
Summerlee, "	100/	82/
Carnbroe, "	92/	81/
Monkland, "	90/	80/
Clyde, "	90/	80/
Govan, at Broomielaw	87/6	78/
Langloan, at Port Dundas	107/6	83/
Calder, "	111/	82/6
Glengarnock, at Ardrossan	97/	81/6
Eglinton, "	87/6	76/
Dalmellington, "	87/6	76/
Carron, at Grangemouth, selected	100/	....
Shotts, at Leith	102/6	85/
Kinneil, at Bo'ness	90/	80/
Bar Iron	£10	
Nail Rods	10	

SHIPMENTS.

Week ending Sept. 6, 1873	Tons,	10,629
" Sept. 5, 1874	"	9,483
Decrease	"	1,146
Total decrease since Dec. 25, 1873	"	151,522

Messrs. James Watson & Co. report, under date Sept. 4: Our Scotch pig iron market has been firm during the week, with business in warrants from 81/9 to 79/6, closing to-day firm at 81/3, cash. Shipments last week were 8751 tons against 12,309 tons in the corresponding week of 1873:

	No. 1.	No. 3.
G. M. B., at Glasgow	86/6	78/
Gartsherrie, "	108/6	85/
Coltness, "	108/6	86/
Summerlee, "	105/	81/
Langloan, "	106/	82/6
Carnbroe, "	91/	80/
Calder, at Port Dundas	111/	81/
Glengarnock, at Ardrossan	96/	81/
Eglinton, "	86/	77/
Dalmellington, "	86/	76/
Shotts, at Leith	103/6	86/
Kinneil, at Bo'ness	90/	80/

The shipbuilding trade is better than when last reported upon, owing to recent reductions in the price of iron and fuel, which have enabled figures to be put down somewhat.

THE SHEFFIELD TRADES.

There is very little alteration in the general state of trade in this town and district, quietude being still the order of the day.

Some of the iron works are in receipt of a few orders of respectable dimensions for plates and wire, but, as a rule, the new commissions are neither numerous nor heavy. Rather more is doing in Bessemer steel and rails of that material, in consequence of the reduced figures recently quoted. Hematite pig iron is easy at the following rates: Millom, hematite, Bessemer, No. 1, 95/; No. 2, 92/6; No. 3, 90/; ordinary, No. 3, 90/; No. 4, 87/6; No. 5, 87/6; mottled, 105/; and white, 105/ per ton on four months' terms, net. Maryport is held at 95/ for Nos. 1, 2 and 3; 90/ for No. 4; 90/ for No. 5, M and W; 100/ for Bessemer No. 1; 97/6 Bessemer No. 2, and 95/ for Bessemer No. 3. Bessemer material in the rough is generally worth from £9 to £10 per ton.

Contrary to general expectation, and, indeed, apparently in the very face of premises leading to an opposite conclusion, an upward movement in the price of coal has been initiated in this district. On Saturday one or two of the colliery owners of East Derbyshire district raised the price of their coal 1/ per ton, and on Tuesday, being the first day of September, their lead was followed on a more venturesome scale by others. So far as my information goes, I believe that one of the leading coal owning companies near Sheffield, having a retail connection in this town in addition to its wholesale business, has "leveled up" its prices, and that at several large collieries in the Rotherham, South Yorkshire, and Derbyshire districts quotations have been advanced by 1/ to 2/6 per ton. At present the rise is not a general one, but under certain circumstances it is likely to become so.

I mentioned last week that the whole of the men employed in the blast furnace department of Messrs. John Brown & Co., Atlas Works, Sheffield, had received notice of a reduction of 10 per cent. in wages, to take effect on August 29th. It now remains to be recorded that, by a mutual arrangement, the men have agreed to continue at work providing the drop be made 7½ per cent. only. This has been assented to by the management, it being exactly the same percentage that was added to the men's pay in April, 1873.

The steel trade generally remains very quiet, and I am informed that even the very best firms find it difficult to keep their men fully employed. The foreign and American orders for cast steel are very light and not numerous. Some of the more reflective minds in the trade are beginning to form theories which are unfavorable to the future of this old established industry. We assert that the developments of late years in Bessemer and Siemens-Martin material have seriously robbed the cast steel manufactures, these new steels being very suitable for many purposes for which cast steel was previously the only available agent, and the comparison in prices being ridiculously favorable to the new productions. They find this state of things to be on the increase, and they, therefore, are somewhat uneasy as to the future. I hear of no new movement of importance in the cutlery trade, which continues in an inanimate condition.

BIRMINGHAM AND SOUTH STAFFORDSHIRE.

The colonies and one or two foreign markets are taking fairly large lots of hardware from Birmingham and the surrounding *congerie* of towns producing goods of that ilk. The busiest branches of industry are the brass founding, machinery, nut and bolt, wrought hinge and hollow ware. In many respects the North of Europe is still the best customer for these goods, which must of necessity be got off before the close of the shipping season. India, Egypt, the Cape, and even China, are sending goodly sized orders for machinery, such as hydraulic apparatus, lifting jacks, pumping engines, pulley blocks, horizontal engines, &c. The makers of bridge and ordinary girders, and general kinds of steam boilers, are enjoying a period of renewed activity, and in the chandelier and gas fitting trades the setting in of autumn and consequent approach of winter is marked by increased pressure. The button manufacturers are particularly busy on ivory fancy buttons for the ornamentation of the "fair ones'" dresses. The iron tube makers are still short of orders. The large nut and bolt manufacturers have just reduced all descriptions of bolts, nuts, set screws, rivets, coach screws, square and hexagon hand and machine made nuts, and their general productions of that class, 5 per cent. all round. There is not a great change to note in the general condition of the Staffordshire iron market. Business, however, is reported brisker, a good amount having been transacted during last week. There is a steadily good demand for Sheets. Messrs. Baldwin, of Wilden, have issued a revised list, which rearranges figures thus: Severn Sheets, £15; Wilden B, £18; B B, £19; B B B, £20. 10/; B Charcoal, £27. 10/; E B Charcoal, £29. 10/ per ton at the works. Their quotations for tin plates are: E P and W B, 42/; Wilden, 41/; Unicorn, 40/; Arley, 38/; these are all I C. Common Bars can be had at £10, but few transactions are recorded owing to the underselling of the South Wales firms. Whether the renewed firmness is *bona fide*, or a mere spurt put on in order to get goods off before the shipping season closes, yet remains to be seen; there would, nevertheless, appear to be good reason for supposing that trade *is* improving.

SOUTH WALES.

What little news there is this week from the South Wales district is of good omen, and foreshadows a state of affairs which is a clear advance upon the late stagnation. Most of the works are doing better, and several of the largest, Dowlais and Ebbw Vale, for instance, are in receipt of heavy rail orders. Even at Cyrfarthfa matters are looking more cheery, and there is the prospect of an early resumption of work at that gigantic establishment. The wages' disputes are dying out. I am informed that the bulk of the rail orders, to which I have alluded, are on South American account, with some few from Russia, Turkey, Egypt and Italy.

THE METAL MARKETS.

Metals have been briskly dealt in during the week, copper having been particularly fancied. A good business has been quietly done in lead, whilst tin transactions have been effected at lower prices, owing to the reduction of standard by the Cornish smelters. A perusal of the following excerpts from merchants' reports, &c., will give an accurate and consecutive representation of the state of the markets since I last wrote:

Messrs. Richardson & Co., Swansea, Sept. 2, report: "*Copper.*—Present stocks of Chili are 3183 tons of ore, 6518 tons of regulus, 990 tons of copper; Cape produce, 408 tons of ores; Canadian ores, 847 tons; Newfoundland ores, 1537 tons; Spanish ores, 83 tons; Italian ores, 73 tons; Australian ores, 76 tons; British ores, 707 tons; making a total unsold at Swansea of 6414 tons of ore. These totals represent about 5200 tons fine copper. The sales were made from 15/ to 15/3 per unit. The events of the past month have made no material change in the values of the copper market—we have seen scarcely any fluctuation whatever. Perhaps the most noticeable feature that has occurred has been the disruption of the American speculators, through the suspension of one of their largest members; we hear that the surplus stocks they were offering have been bought up by consumers on the other side. Chili bars of g. o. b. have been very firm throughout the month at £75 to £76, with a fair business doing, and the month closed with values showing an upward tendency, 10/ more being offered and declined. In furnace stuff, excepting our public sales shown above, we have heard of no large parcel changing hands; holders are inclined to wait for higher rates, 15/3 has been offered for regulus and refused. As we write we have telegraphic news of 15/7½ having been paid for a large quantity to arrive. The advices from the West Coast, since our last issue, are 1000 tons pure for the second half of July, and 2000 tons for the first half of August, 900 of which are in bars, and 1100 in ores and regulus. We quote ores and regulus 15/6 to 16/ per unit; tough cake, £83. 10/ to £84. 10/; Chili bars, £77. 10/ to £78; bar silver, 4/10 per ounce standard."

Messrs. French & Smith, London, Sept. 3, say: "*Tin.*—The fluctuations in price in August were but trifling. The uncertainty as to Australian supplies prevents speculation; but the actual demand for consumption keeps the price steady. The deliveries of foreign last month were again very large. From Holland: Banca, 570 tons; Billiton, 250. From London: Straits and Australian, 745; from which deduct what was transhipped to United States, 194; leaves a net delivery, 1371 tons. The price to-day is Straits, £92. 10/; Australian, £91. 10/; in Holland, Banca, 57½ guilders; Billiton, 54½ guilders. We estimate the quantity of tin (tin and ores) afloat from Australia to be 800 tons."

Messrs. Von Dadelszen & North's report, Sept. 4, runs in this wise: "*Copper.*—A fair business has been done in Chili bars at from £77. 10/ to £78. 10/, according to brand; and £78. 10/, to arrive, for g. o. b.; ore and regulus, 15/3 and 15/6 per unit; Wallaroo, £87. 10/ to £88; Burra, £86. 10/ to £87. English smelters are asking rather more money. *Tin.*—On the publication of the large deliveries on Monday there was an active demand, and Straits advanced from £91 to £93, and Australian from £89 to £91; but the market has gone easier. Our closing quotations are: Straits, £92 on the spot, £91 to arrive, and Australian, £90. 10/. English is quoted £96 for common, but less might be accepted for a good order. In Holland, Banca is firm at 57½ fl., and Billiton at 54½ fl. Tin plates steady. Lead rather dearer; £21. 5/ to £21. 7/6 for good English pig. Spelter has been done at £22. 5/ in London, £22. 2/6 outports, and £22. 10/ for special brands. Quicksilver, £23. At the Cornish ticketing, at Redruth, on Thursday, 782 tons of copper ore realized £3805. 18/6, being an average of £4. 17/6 per ton. Fine copper, 57 tons 2 cwt., average produce 7¼; average standard, £104. 6/, being an advance upon last sale of £4. 5/.

The *Mining Journal's* remarks (dated Sept. 5th) are these:

"*Copper*—The market for Chili bars is again slightly higher, and several important sales have been announced during the earlier part of the week. The position of the article statistically is better, and there exists fair grounds for an enhanced value. Deliveries in Liverpool and Swansea during the past fortnight of August of Chili produce were very favorable, the stock being reduced from 18,500 tons on the 15th ult. to 17,300 tons on the 31st, and the quantity of bars estimated at only 13,178 tons. According to advices received on Saturday, the Chili charters for the last fortnight amount to 2100 tons. *Lead*—The market keeps steady, and prices rather tend in an upward direction. Spanish is active, and realized £21 at Newcastle. Sheets are in good request, and high prices are now asked. *Spelter*—The stock of Silesian in London on the 1st inst. was only 161 tons. The market is steady, but the transactions are limited. £22 has been obtained at outports, but for delivery 5/ more is required. *Quicksilver*—Sales continue to be effected at £23 per bottle. For the first six months of this year the imports were 2,203,997 lbs., and the exports were 1,557,550 lbs. The arrivals up to July are very nearly equal to those of the same period of 1873 and 1872, the former being 2,244,711 lbs., and the latter 2,222,190 lbs. *Tin Plates*—Manufacturers still experience difficulties in making deliveries, on account of the conduct of the men. The reduced prices have not created any material increase in orders. Shipments during the first six months of this year were 69,388 boxes, against 79,124 in 1873, and 71,273 in 1872. *Steel*—Swedish is quite neglected, the German manufacture having superseded it. In English there is no change. *Tin*—In consequence of the deliveries being large, there is less disposition to sell unless higher prices can be realized. In Straits, sellers want £92. 10/ to £93, and £91 to £91. 10/ for Australian. Banca is quoted 57½ fl., and Billiton 54½ fl. in Holland. The stock of foreign in London is rather large, or about 1000 tons in excess of the two previous years. Stock, 1874, 2755 tons; 1873, 1884 tons; 1872, 1759. Australian tin ore has been realizing from £35 to £55 per ton.

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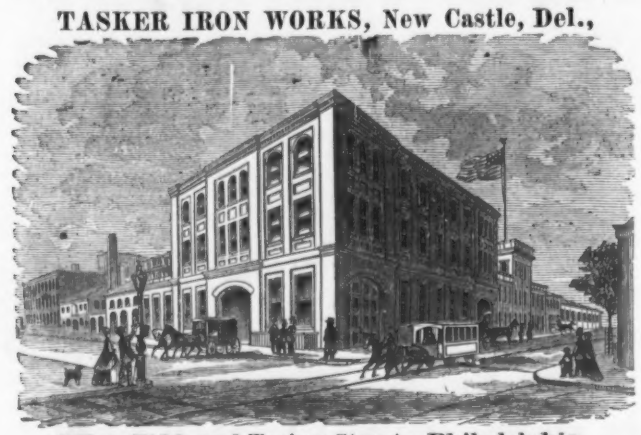

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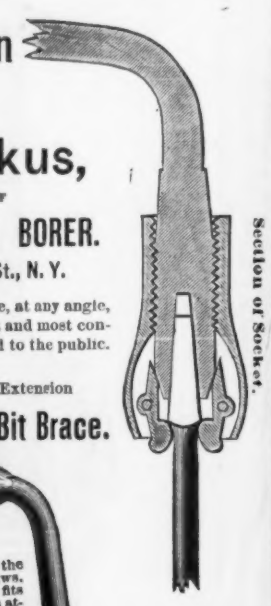
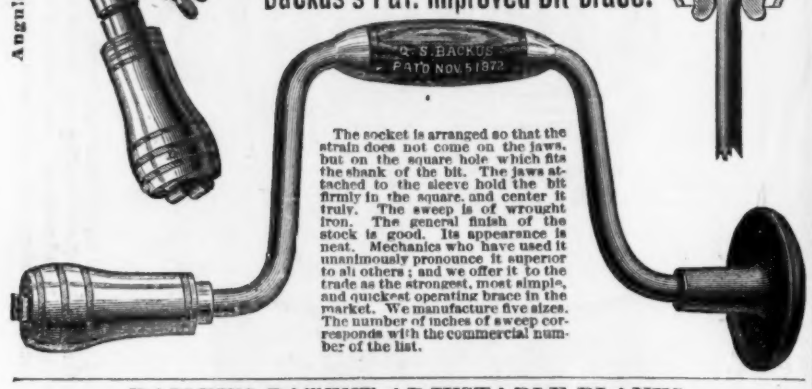


Section of Socket.



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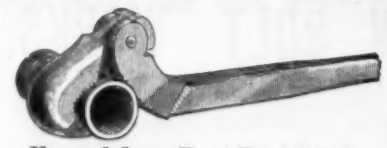

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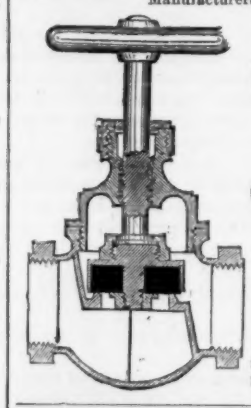

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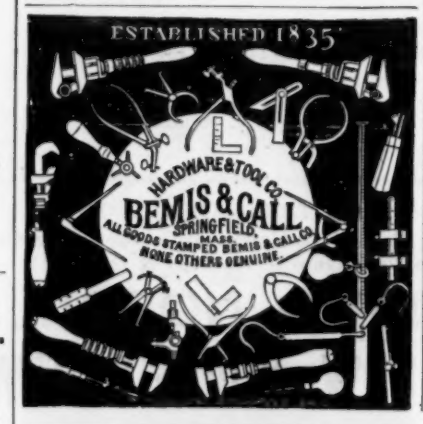
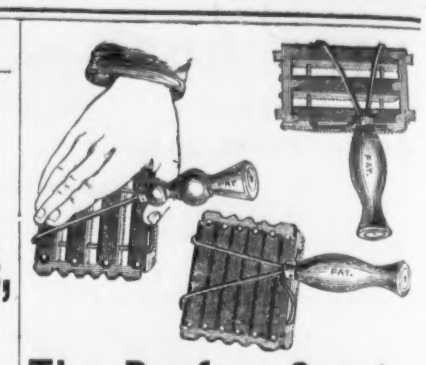
LUBRICATOR.

Warranted the most reliable and durable in the country.





The Perfect Comb.

We call your attention specially to our new patent endless wire frame comb. The result of a long series of experiments, made with a view to meeting all the requirements of a *Perfect Comb*. It is better, stronger, and more durable than any ever before invented. The raised wire shank gives what has never before been attained, viz: a rest and brace for the thumb, in such a position that the hand cannot come in contact with the horse while using the comb. The wire braces which run from the shank over the back to the front teeth give strength and durability in a direction never heretofore attained, and at the same time serve as an extra handle; and when clasped by the fingers in connection with the raised shank the comb is more firmly, easily, and completely held, and with much less fatigue to the hand than is possible in any other formation—in short, it needs but a trial to vindicate its name: **The Perfect Comb.**

THE LAWRENCE COMB CO.

Factory and Office,

382 2d Ave., cor. 22d St., N. Y.

THE CHARLES GREGG MANUFACTURING CO.

BRASS WORK of all kinds,

FITTINGS FOR

Steam, Gas and Water

PLAIN AND GALVANIZED

WROUGHT IRON PIPE,

Nos. 62 & 64 Gold Street,

NEW YORK.

Business Established, 1838. Incorporated, 1872

Send for Price List.

GRAFF TUBE WORKS.

WILLIAM GRAFF & CO.,

Manufacturers of Plain and Galvanized

Wrought Iron Pipe

For

Gas, Steam, Water, Oil, &c.,

No. 140 First Ave., PITTSBURGH, PA.

Pipe of any Size, Length or Thickness furnished to order.

WM. S. CARR & CO.

Sole Manufacturers of

Carr's Patent Plumbers' Goods

Pumps, Water Closets, Fountains, Vases, &c.

OFFICE AND WAREROOMS

106, 108 & 110 Centre Street,

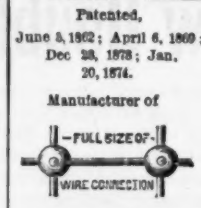
Factory, Mott Haven, New York.

JOHN MAXHEIMER,

Patented,

June 5, 1862; April 6, 1869; Dec 28, 1873; Jan. 20, 1874.

Manufacturer of



JAPANNED and PATENT EUREKA Bright Metal

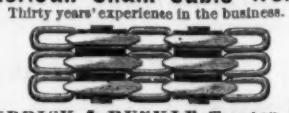
BIRD CAGES.

Nos. 247 & 249 Pearl Street

NEW YORK.

American Chain Cable Works.

Thirty years' experience in the business.



KENDRICK & RUNKLE, Trenton, N. J.,

Manufacturers of **Cable, Crane, Car Brake, Agricultural Machine and Harness Chains** of every description. Also, sole manufacturers of

KENDRICK'S PATENT IMPROVED TRIPLE COAL MINE SLOPE CHAIN.

N. B. The highest grades of Crane Chains a specialty.

New England Chain Works

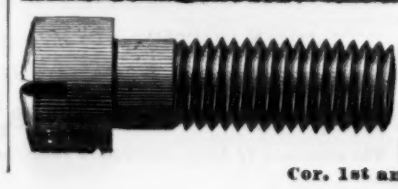
771 Eddy Street, Providence, R. I.

Manufacture **Iron Chain** of every description.

Mowing Machine, Crane, Break, Draft Chains, &c., &c.

Also, **Latest Improved Cotton Can Rings.**

THOS. WYATT, Proprietor.



TURNED MACHINE SCREWS,

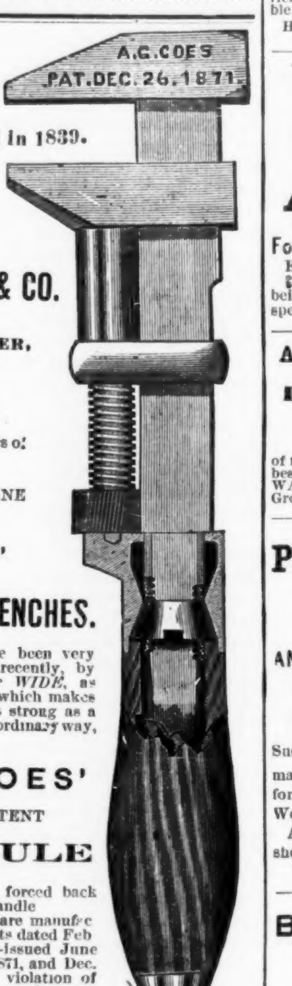
One-sixteenth to five-eighths diameter.
Heads and points to sample.
IRON, STEEL and BRASS.

Lyon & Fellows Mfg. Co.,

Cor. 1st and North 3d Streets, Williamsburgh, N. Y.

The Iron Age Directory

and Index to Advertisements.



Patent Laws.*

(Continued.)

JOINDER OF INVENTIONS AND OF INVENTORS.

Although it is clear, on principle, that a process, a machine, and a product, concurring to a common result, are properly claimable in the same patent, the Patent Office, for the sake of convenience in examining inventions by classes, refuses at present to grant such patents. It requires that a separate patent shall be taken for each distinct machine, process, manufacture or composition of matter, even for distinct improvements upon the same structure or machine.

Whenever an invention is the joint product of different minds, a joint patent must be applied for by all the inventors, and if a patent for such an invention is taken by any numbe of such inventors, less than the whole number, such patent is void. When, however, one person is clearly the inventor of a distinct part of a device, and another person is clearly the inventor of another distinct part of such device, distinct patents may be taken by each for his part, though a joint patent would probably be valid.

When a patent has been granted for an invention alleged to be joint, no evidence short of that which is conclusive and indisputable will be held to prove such invention to be other than joint.

When a person has in his mind the main features of an invention, or has grasped the general principles upon which it is to operate, he is entitled to the aid, counsels and experiments of scientific men, and to the efforts and suggestions of skilled mechanics in reducing his invention to practice, and in embodying it in tangible materials, without forfeiting his right to the title of inventor.

An employer is not necessarily entitled to an invention made by a workman in his employ. It would require a distinct contract or understanding to that effect to entitle the employer to the patent. Where, in the absence of any specific understanding or contract, a man makes an invention in the time of his employer, using his tools and materials in experiments and construction, this would furnish strong evidence that the improvement was intended to be for the benefit of the employer. In any case the application for patent must be made by the inventor, and if it belongs to the employer, assigned to him.

CAVEATS.

A caveat is only notice of an inventor's intention to ultimately apply for a patent, and it prevents another inventor from getting a patent, unbeknown to the caveator, while the caveat is in force. The United States grants patents to citizens of all countries upon the same terms; but caveats can only be filed by citizens and aliens who have resided here one year and taken the oath of intention to become citizens. So long as the caveat is in force, no one but the inventor or his attorney can have any access to it, or get any information from the office about it; but after a caveat has lapsed any one is entitled to see it, or have a copy of it, upon paying for the same. The practice of the Patent Office is to revive a caveat from year to year, so long as the government fee is regularly paid. A caveat does not prevent other parties than the inventor from making, using and selling the invention. Any invention can always be freely made, used and sold by others than the inventor, without liability, until the inventor's patent issues from the Patent Office. A caveat may be legally filed on a complete or an incomplete invention; the filing is not conclusive evidence that the invention which forms its subject matter is incomplete. The statutory governmental fee upon the filing of a caveat is $10.

APPLICATIONS FOR PATENTS.

In order to constitute an application for a patent which the commissioner will recognize and act upon, there is required a petition, a specification, an oath, drawings and model when the nature of the invention permits it, or if the invention be a new composition of matter, specimens of the ingredients and of the compound, and a fee of $15.

The Patent Office has issued a pamphlet containing instructions and forms for petitions and other papers, which will be sent without charge to all intending patentees who request the Commissioner so to do.

Patent Office drawings are now required to be upon paper stiff enough to stand in the portfolios; the surface of which must be calendered and smooth, "two sheet" Bristol board, or Whitman's hot pressed drawing paper, "antiquarian size" is recommended. Nothing but the drawings and signature are permitted on the face of the sheet, and these must all be within the marginal line. The drawing should be referred to in the specification by letters of reference.

The inventor is required to make oath, not that he is the original discoverer or inventor, but that he believes himself to be such, that he does not know or believe that the same was ever before known or used; and he must state of what country he is a citizen.

The model is required by the office rules to clearly exhibit every feature which forms the subject of a claim of invention, but should not include other matter, unless necessary to the working of the model. It must be neatly and substantially made of durable material, and not more than one foot in length, width or hight.

The specification is, by far, the most important thing about a patent, and the highest care and skill are often requisite in its preparation. Specifications may, and often do, have faults which render the patents of which they form a part void and worthless. The requirements of the law in this respect are twofold: First, that the invention shall be fairly and clearly described; and, second, that it shall be accurately claimed. The object of the first requirement is that the public may be enabled to practice the invention when the patent has expired.

A description in a specification is ambiguous when a person skilled in the art or science to which the invention appertains, or with which it is most nearly connected, cannot, when working by the specification and drawings, and without invention or experiment of his own, put the invention in practice.

An inventor is required to specify and describe the best mode he knows of putting his invention in practice, when several modes may be employed, and, if he describes an inferior mode, when he knows and himself practices a better one, that creates an ambiguity in his description. If a patentee makes a mistake in a trivial matter, and the mistake is one that a properly skilled person would readily see and overcome, that does not create an ambiguity.

It must always be remembered that to adjudge a specification ambiguous creates a forfeiture that the law does not favor, and it must be quite clear that a specification is ambiguous, insufficient, and uncertain, before a court will thus hold it.

Ambiguity in the claim is a very different thing from ambiguity in the description. An invention may be fully, clearly, and perfectly described, so that a properly skilled person might, from the description, be able to put the invention into practice, and yet in the summary at the end, technically called the claim, he may, by inadvertence or design, so loosely and inaccurately specify what he claims to be his invention, that there cannot be gathered from it what he means to claim. In such a case there is ambiguity in the claim.

The courts have laid it down, in numerous cases, that the patentee must distinctly point out what is old or well known before, and then distinguish the old from the new, but it is now held that this is done by a properly worded claim, even if the patentee do not, in set terms, say that such and such things are old.

The claim is ambiguous when there cannot be gathered from it, in connection with the description, what it is to which the patentee intends to assert an exclusive right.

The claim is, so to speak, the vital part or soul of the patent. It must be confined to the patentee's exact invention, and include no more.

If the invention is a machine which is wholly new, a claim to the machine as such would be valid; but if the invention be a new combination of old parts, then it must be claimed as such, and not otherwise. If the combination be composed of elements, some of which are new, and some old, the patentee may make a claim to each of the new parts specifically, and to the combination of the whole. If an invention is only an improvement on some prior thing, then it should be so claimed. The rights of a patentee are measured by his claim, and if the claim is not as broad as the invention, he has to bear the consequences. Defects of this kind can be cured by a reissue.

Although a patentee is not held to any technical forms in making his claim, the person who draws the claim should determine in his mind before drawing the claim, whether the invention is an art—that is a process—a machine, a manufacture or a composition of matter; and the claim should be drawn to correspond with the invention, for if he clearly claims a machine when the real invention is a process, or a process when the invention is a machine, the patent will be invalid.

A claim can not be made to an abstract principle, or for the discovery of a natural property of a substance, but it must be for the principle as applied, or for a mode or manner of application. It can not be for all ways of doing a thing, or for a result no matter how produced. Courts will support a claim if it is possible to do so without doing violence to the meaning of language, but will do no more.

When an application is rejected, in whole or in part, upon the ground of want of novelty, the examiner cites the references upon which he bases his rejection, and the office will, upon request, furnish to the applicant a copy of all such references, if in possession of the office, which is usually the case, on payment of the cost of making such copies.

When one or two clauses of claim have been twice rejected by the examiner in charge, the applicant may then, if he chooses, take an appeal to the board of examiners in chief, paying a government fee of ten dollars thereon, and filing written reasons of appeal.

* Abstract of Manual of Patent Law by Wm. Edgar Simonds, of Hartford, Conn.

The American Gas Light Association.

OFFICE OF SECRETARY AND TREASURER,
DETROIT, MICHIGAN.

The Second Annual meeting of this Association will be held in the Director's Room of the Academy of Music, Montague street, in the City of Brooklyn, on the third Wednesday, the 21st of October, 1874, at 10 o'clock, a. m.

The officers for the ensuing year are to be elected, and a revision of the constitution on the subjects of membership, organization, etc., will also be submitted for adoption.

Papers upon purification, coal, leakage, Sunday labor and naphtha gas, will be prepared and read by gentlemen conversant with those subjects; papers upon other interesting topics, by Professer Wurtz, of New York, and Professor Douglas, of Michigan University, may also be expected.

It is earnestly desired that a full attendance of members may be had at this meeting. Those contemplating membership, and the fraternity, generally, are cordially invited to attend.

The annual dues of members, and of those wishing to join the Association, may be remitted to the treasurer, or paid to him during the session of the Association.

P. E. DE MILL,
Secretary and Treasurer.

The Paris makers have almost a monopoly in the making of ribbon saws, and of late years they have given much attention to the production of all kinds of saws and other articles made of sheet steel. Among others, M. Dugoujon, who has steam works at Paris, has patented a number of improved modes of manufacture. The blades, after being rolled cold several times, in order to render the grain close and the metal homogeneous, are heated in special furnaces, from which the air is carefully excluded, and when at the proper temperature are plunged in a bath of colza oil; this is done in a dark chamber. The tempering is effected with the aid of machines, which cause the blades to pass between cast iron plates heated to a fixed temperature, according to the nature of the article to be produced. The teeth of the saws are cut by machinery, which requires only laborers to attend them. Since the war, which deprived the establishment of some of its best men, M. Dugoujon has effected the planishing and grinding of circular and other saws and many similar articles by machinery, and, it is said, with great advantage with respect to regularity and stiffness. Another introduction is the mechanical reduction of the joints of ribbon saws. The breaking of the joint is the only inconvenience about this useful instrument. The workman, in reducing the welded part, by means of the file, scarcely ever left it of exactly the same thickness as the rest of the blade, thus it either created extra friction, or was liable to break. By the new method the reduction is made by grinding instead of filing, and as that is effected longitudinally instead of across the blade, the thickness is rendered perfectly uniform. This invention is said to save 60 per cent. in wages beside the cost of the files.

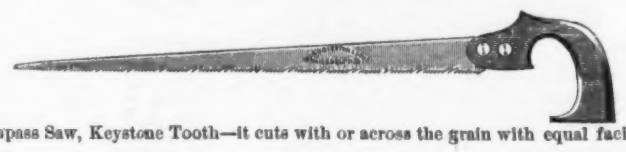
HENRY DISSTON & SONS,
Keystone Saw, Tool, Steel and File Works,
PHILADELPHIA.

Manufacturers of SHEET STEEL, and all Articles made from Sheet Steel.

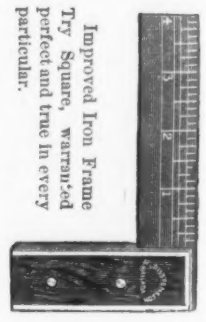
SAWS OF EVERY DESCRIPTION.

Also, FILES, TOOLS, Etc., and all kinds of Labor Saving Implements for keeping Saws in perfect order.

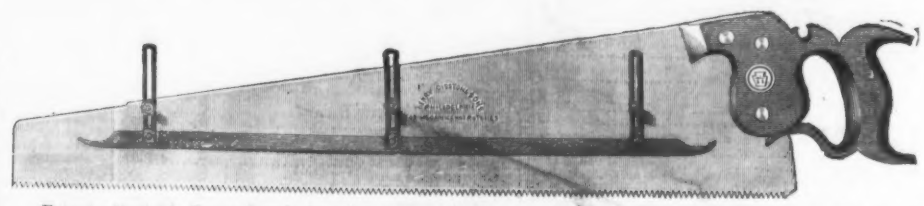
Hand Saw with adjustable handle. The thumb screws in the handle operate on the butt of the saw blade, and can be so adjusted as to give the blade any desired pitch.



Compass Saw, Keystone Tooth—it cuts with or across the grain with equal facility.



Improved Iron Frame Try Square, warranted perfect and true in every particular.



Patent adjustable Gauge Saw for sawing tenons, kerfing, or any work where the cut is required to be of definite depth. Will pay for itself in one day. Try it and be convinced. Remove the gauge and use as an ordinary saw.

Hack Saw. The blade in this Saw is reversible, an advantage which will be readily appreciated by mechanics.

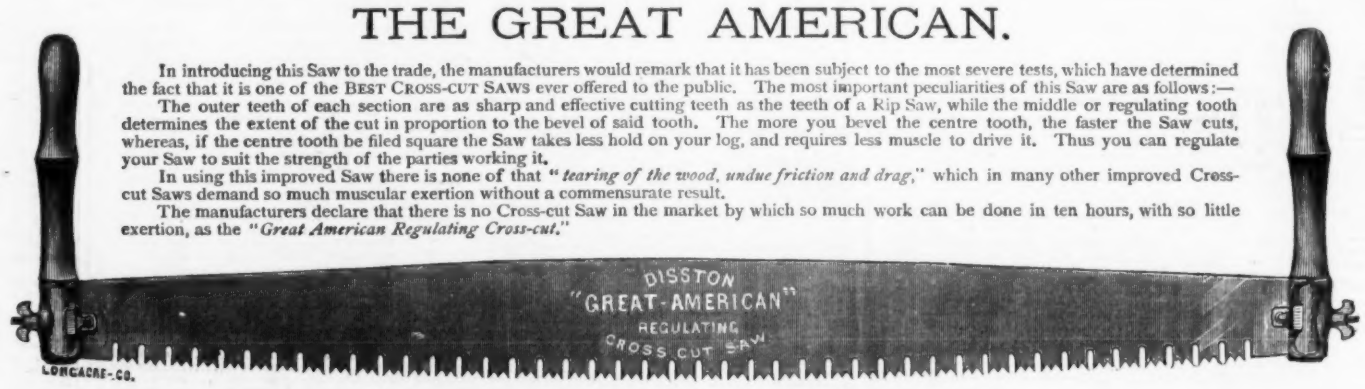
THE GREAT AMERICAN.

In introducing this Saw to the trade, the manufacturers would remark that it has been subject to the most severe tests, which have determined the fact that it is one of the BEST CROSS-CUT SAWS ever offered to the public. The most important peculiarities of this Saw are as follows:—

The outer teeth of each section are as sharp and effective cutting teeth as the teeth of a Rip Saw, while the middle or regulating tooth determines the extent of the cut in proportion to the bevel of said tooth. The more you bevel the centre tooth, the faster the Saw cuts, whereas, if the centre tooth be filed square the Saw takes less hold on your log, and requires less muscle to drive it. Thus you can regulate your Saw to suit the strength of the parties working it.

In using this improved Saw there is none of that "*tearing of the wood, undue friction and drag,*" which in many other improved Cross-cut Saws demand so much muscular exertion without a commensurate result.

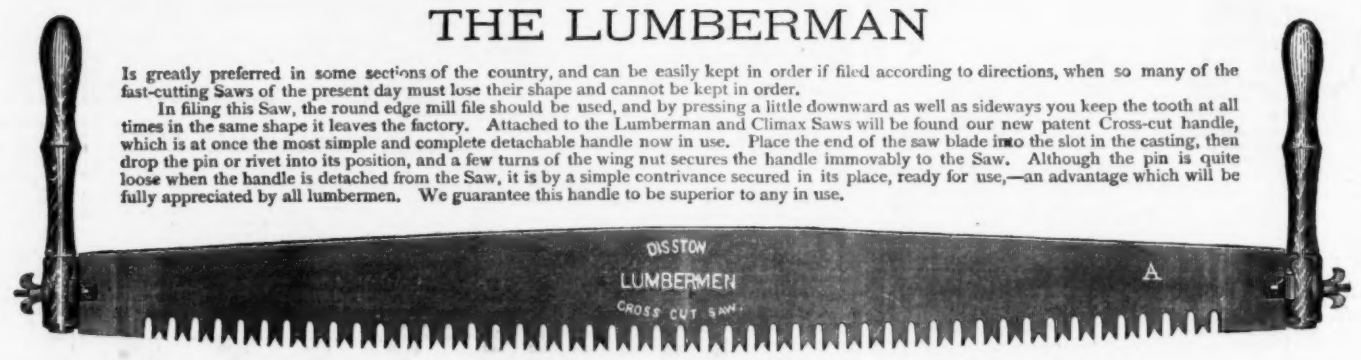
The manufacturers declare that there is no Cross-cut Saw in the market by which so much work can be done in ten hours, with so little exertion, as the "*Great American Regulating Cross-cut.*"



THE LUMBERMAN

Is greatly preferred in some sections of the country, and can be easily kept in order if filed according to directions, when so many of the fast-cutting Saws of the present day must lose their shape and cannot be kept in order.

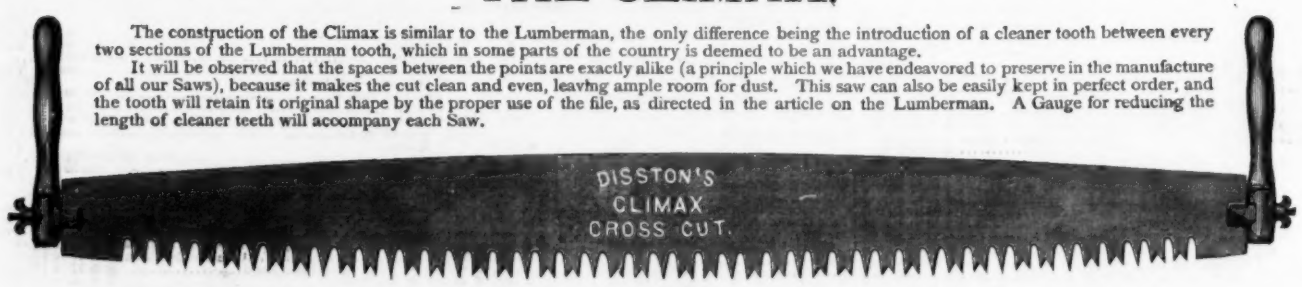
In filing this Saw, the round edge mill file should be used, and by pressing a little downward as well as sideways you keep the tooth at all times in the same shape it leaves the factory. Attached to the Lumberman and Climax Saws will be found our new patent Cross-cut handle, which is at once the most simple and complete detachable handle now in use. Place the end of the saw blade into the slot in the casting, then drop the pin or rivet into its position, and a few turns of the wing nut secures the handle immovably to the Saw. Although the pin is quite loose when the handle is detached from the Saw, it is by a simple contrivance secured in its place, ready for use,—an advantage which will be fully appreciated by all lumbermen. We guarantee this handle to be superior to any in use.



THE CLIMAX.

The construction of the Climax is similar to the Lumberman, the only difference being the introduction of a cleaner tooth between every two sections of the Lumberman tooth, which in some parts of the country is deemed to be an advantage.

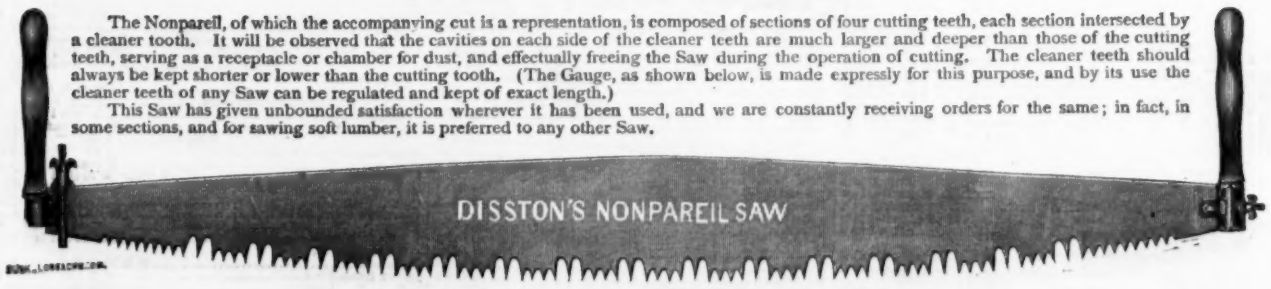
It will be observed that the spaces between the points are exactly alike (a principle which we have endeavored to preserve in the manufacture of all our Saws), because it makes the cut clean and even, leaving ample room for dust. This saw can also be easily kept in perfect order, and the tooth will retain its original shape by the proper use of the file, as directed in the article on the Lumberman. A Gauge for reducing the length of cleaner teeth will accompany each Saw.



THE NONPAREIL.

The Nonpareil, of which the accompanying cut is a representation, is composed of sections of four cutting teeth, each section intersected by a cleaner tooth. It will be observed that the cavities on each side of the cleaner teeth are much larger and deeper than those of the cutting teeth, serving as a receptacle or chamber for dust, and effectually freeing the Saw during the operation of cutting. The cleaner teeth should always be kept shorter or lower than the cutting tooth. (The Gauge, as shown below, is made expressly for this purpose, and by its use the cleaner teeth of any Saw can be regulated and kept of exact length.)

This Saw has given unbounded satisfaction wherever it has been used, and we are constantly receiving orders for the same; in fact, in some sections, and for sawing soft lumber, it is preferred to any other Saw.



READ, MARK, LEARN.

We guarantee our Cross-Cut Saws to do more work, day in and day out, the season through, than any other saw in the market.

The test of practical experience has been applied, the verdict given, the fiat has gone forth, and the Humbugs are fast fizzling out, while our rapidly increasing sales testify to the estimation in which these saws are held.

We pledge ourselves that no effort shall be wanting to keep up the standard and reputation of our manufactures.

Plain Truths for Practical Men.

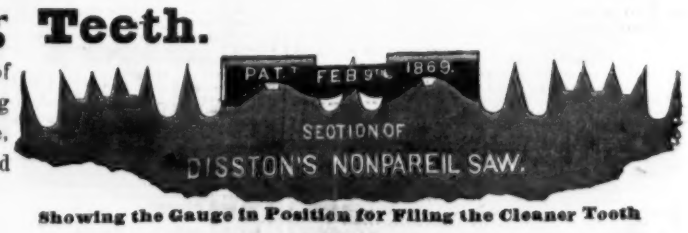
We guarantee our Cross-Cut Saws to do more work, day in and day out, the season through, than any other saw in the market.

The test of practica experience has been applied, the verdict given, the fiat has gone forth, and the Humbugs are fast fizzling out, while our rapidly increasing sales testify to the estimation in which these saws are held.

We pledge ourselves that no effort shall be wanting to keep up the standard and reputation of our manufactures.

Gauge for Regulating Cleaning Teeth.

The cleaning teeth of all saws should be somewhat shorter than the cutting teeth, and, although shortened, they should be of uniform length throughout. The inner edge of the Gauge rests on the points of the cutting teeth, the cleaning teeth projecting through the opening in centre of Gauge. Reduce the projecting points, by means of a file, until arrested by the edges of the Gauge, which is made of hardened steel. Thus tooth after tooth can be rapidly and correctly reduced to an even length by any unskilled operator



Showing the Gauge in Position for Filing the Cleaner Tooth

New York Wholesale Prices, September 23, 1874.

HARDWARE.

Anvils.
Solid Cast Steel.... ₱ lb 14c
Wright's.... ₱ lb gold 13c; over 250 lbs 12½c, gold
Armitage's Mouse Hole.... gold 11c
Wilkinson's.... ₱ lb gold 11½c
Eagle Anvils, ₱ lb 11c currency.... dis 15&10 %

Apple Parers.
Domestic / Turn Table / Lightning / Hudson's / Reading / Union.... $7 @ 8 ₱ doz
Skeleton Paring, Coring and Slicing....
Bay State, Paring, Coring and Slicing.... $15 00 dis 5 %
Climax Slicer.... 8 00
Bay State Peach Parer.... $11 00 @ 11 50
Lightning ".... 11 00 @ 11 50
Peach Stoner and Halver.... 7 00

Augers and Bits.
Douglass / Ives / Beecher / Griswold / Challenge / Noble.... 1st quality.... dis 25, 10&10 %; 2d quality.... dis 25, 10, 10&5 %
Snell Mfg. Co.... dis 15 @ 20 %
Russell Jennings.... dis 10 %
Douglass Mfg. Co. Hollow Augers.... 25&10 %
Cushman's Expanding Hollow Augers.... dis 20 %
Ives Gouge Lip Augers and Bits.... dis 30&10 %
" Hollow Augers.... dis 25&10 %
" Expansive Hollow Augers.... dis 40 %
" Expansive Bits.... dis 20&10 %
Andrews' Bits.... dis 25 %
Clark's Expansive Bits.... dis 15 %
Cook's Patent Augers.... dis 50 %
" " Bits.... dis 40&10 %
Shepardson's Double Cut Bits.... dis 20 %
Griswold's Patent.... dis 20 %
Gimlet Bits.... dis 10&10 %
Long Augers.... new list dis 40 %
Bonney's Patent Hollow.... $48 per doz—dis 25 %
Stearns' ".... $48 per doz—dis 25 %
Morse's Bit Stock Drills.... dis 20 %
L'Hommedieu's Ship Augers.... dis 15 %
Watrous Ship Augers.... dis 15 %
Vaughan's Post Hole—
6 in. $23 60; 9 in. $25 per doz.... dis 20 %

Awls and Tools.
Aiken's.... dis 25 %
Nos. 42 and 43.... dis 30&10 %

Axes.
Brook's.... per doz $12 00 @ 14 00 net
Blood's.... per doz $12 50 @ 14 00
Hunt's.... ₱ doz $14 00 @ 19 00 dis 5&5&5 % cash
Collins'.... ₱ doz 11 00 @ 15 50 net @ dis 5 %
Hurd's.... ₱ doz 12 50 @ 13 50
Schweitzer Mfg. Co.'s.... ₱ doz 13 00 @ 15 00
Simmons'.... ₱ doz 11 00 @ 11 50
Morris'.... ₱ doz 12 50 @ 13 50
Red Jacket.... ₱ doz 12 00 @ 12 50
Mann's.... ₱ doz 11 50 @ 13 00
Double Bitted.... ₱ doz 21 50 @ 22 00
Lowell Tool Co. "Peerless".... ₱ doz 13 00 @ 14 50
Underhill's.... ₱ doz 12 00 @ 13 00
" Crown.... ₱ doz 12 50 @ 13 50
John Leverett's.... ₱ doz 12 50 @ 15 50
Ten Eyck.... ₱ doz $11 00 @ 12 50 net

Balances.
Chatillon's / Frary's / Morton's.... new list dis 15 %

Bands.
Plated.... new list dis 50&5 %
Iron Rim.... new list dis 25&5 %
Brass (Plated list).... new list dis 50, 10&5 %
Oroide.... new list dis 50&5 %

Bells.
Hand, Light Brass.... dis 66⅔&10 %
Hand Ex. Heavy.... dis 40&10 %
White Metal.... dis 50&10 %
Sheep.... dis 25 %
Swiss.... dis 50 %
Globe.... dis 15&10 %
Abbe's.... dis 15&10 %
Taylor's Patent Door.... dis 25 %
Western Gong.... dis 25 %
Brook's Crank.... revised list dis 50 %
" Pull.... revised list dis 50 %
Hart Mfg. Co., Crank and Pull.... dis 50&10 %
Cow—Common Wrought.... dis 20&10 %
Western.... new list dis 20&10 %
Kentucky "Star".... new list dis 20&10 %
Dodge's Genuine Kentucky.... new list dis 35 %
Yaw's Genuine.... dis 30 %
Texas.... dis 35 %
Call.... dis 15 %

Bellows.
Blacksmiths'.... dis 20 %
Moulders'.... dis 15 %
Hand Bellows.... dis 10 %

Blind Fasteners.
Mackrell's.... dis 30 %
Van Sand's.... ₱ gross $14 00
Washburn's Patent.... ₱ gross 14 00
Merriman's.... new list net

Blind Staples.
Boardman's Patent, ⅛ in. and larger.... ₱ lb 37 c
" ⅝ in.... " 42 c

Bolts.
Carriage and Tire, Ætna Nut Co.... dis 60 %
Stove, Ætna Nut Co.... dis 10&5 %
Cast Iron Barrel, Shutter, &c.... new list dis 60, 10&10 %
Wrought Iron Barrel.... new list dis 50, 10&10 %
" " Square.... new list dis 50, 10&10 %
Wrought Iron Flush.... dis 15&10 %
Carriage and Tire, Common.... dis 75&10 %
" " " Norway Iron.... dis 50 & 10 %
Star, Philadelphia.... dis 50 @ 50&10 %
Eagle, Philadelphia.... dis 50 @ 50&10 %
Philadelphia Pattern, P. S. & W.... dis 50&10 %
Tire, Bessemer Steel, Hubbard & Curtiss.... dis 50 %
Carriage and Tire, R. B. & W.... old list dis 50&5 %
Plow, R. B. & W.... dis 30 %
Stove, R. B. & W.... dis 10 %
" Shelton Co., Shaved Heads.... dis 15 %
Union Nut Co., old list.... dis 50&2 ½&5 %
" " Stove.... dis 15 %
Machine.... dis 40 @ 45 %

Borax..... by case, 16c.; less. 18c. ₱ lb

Boring Machines.
Kellogg's.... dis 15 %
Snell Mfg. Co., Rice's Patent.... dis 20 %
" " Regular.... dis 20 %
Douglas Mfg. Co.... dis 20&10 %
Morticing Machines each.... $18 00

Bow Pins.—Union Nut Co., new list.... dis 50&10&5 %

Braces.
Hildreth's Patent.... dis 40, 10&5 %
Barber's Patent.... dis 40&5 %
Q. S. Backus.... dis 40&10 %
Wilson Mfg. Co.... new list dis 10 %
Spofford's Patent.... dis 40&5 %
Noble's Patent.... dis 40&5 %
Bartholomew's American Ball.... dis 10&10 %
" Patent Grip.... dis 40 %
Ives' Novelty.... dis 40&5 %
Common Ball.... dis 15&10 %

Brackets.
Shelf.... dis 60&10 %

Bull Rings.—Union Nut Co., new list. dis 50&10&5 %

Bung Hole Borers.
Common and Ring.... dis 25 %
Enterprise Mfg. Co.... dis 20&10 %
Ives' Tap Borers.... dis 25 %

Butchers' Cleavers.
Humason & Bukley Mfg. Co.... dis 20&10 %
Bradley's.... dis 25 %
Beatty's.... new list dis 20 %

2	3	4	5	6	7	8	9
$19 00	$21 50	$24 00	$27 00	$30 00	$33 50	$36 50	$40 00

Hart Mfg. Co.... dis 45&10 %

0	1	2	3	4	5	6
$25 25	$29 75	$30 25	$38 75	$43 55	$48 50	$54 00

Butts.
Wrought Brass.... new list dis 30 %
Cast Fast Joint, Narrow.... dis 50&5 %
" " Broad.... dis 50&5 %
Cast Loose Joint.... dis 60&5 %
" " Mayer.... dis 50&5 %
" " Parliament.... dis 50&5 %
Drilled Wire Jointed—
Narrow.... dis 50&10 %
Broad.... dis 50 %
Loose Joint.... dis 60 %
Mayer's.... dis 40&10 %
Parliament.... dis 40&10 %
Loose Pin.... dis 50&10 %
Wrought Fast Joint, Narrow.... dis 30 %
Wrought Broad.... dis 35 %
" Loose Joint.... dis 35 %
Wrought Table and Back Flaps.... dis 30 %
Lull & Porter's Blind Butts.... dis 30 %
Palmer Blind Butts.... dis 30&10 %
Nicholson Blind Butts.... dis 40&10 %
Parker's Blind Butts.... dis 50&5 %
Huffer's Blind Butts.... dis 30&10 %
Clark's Surface Blind Hinges, Nos. 1, 3 and 5.... dis 50&5 %
" " " " No. 40 and 50.... dis 50&5 %
" " " " No. 20.... dis 60 %
" Mortise " " 2, 4, 4½, 6, 8, 10.... dis 35 %
Seymour's.... dis 50&5 %
Shepard's.... dis 50&5 %
Garretson's.... No. 1, dis 50&10 %; Nos. 2 and 7 dis 50&5 %
The American Spiral Spring Butt Co.... dis 30 %
Standard.... dis 50&5 %

Caps—Percussion, per 1000.
G. D.... 37c
Ely's E. B.... 1-4s, 58c.; 1-10s, 65c., gold
" Double Waterproof, 1-4s, $1 45; 1-10s, $1 52½c., gold
Colt's.... 1-10s 70c., gold

Carpet Sweepers.
Union.... each $2 75 net
Welcome.... each 2 75 net

Cartridges.
Metallic.... dis 50&10 %

Cards.—Horse and Curry.... dis 30&10 %
Cotton.... new list dis 10&10 %
Wool.... new list dis 15&10 %

Carpet Stretchers.
P. S. & W.... per doz $2 00; dis 40&5 %

Casters.
Bed.... dis 30&10 %
Plate.... dis 40&10 %
Sewing Machine.... dis 70&10 %

Cattle Leaders.... new list dis 60&10 %

Chain
English Coil.... net gold
₱ lb.... 13 9¼ 9 8½ 8½ 8c
3-16 ¼ 5-16 ⅜ 7-16 ½
Trace, 6½-10-2.... by the cask, ₱ pair, gold, 58c
Trace, 7-10-2.... by the cask, ₱ pair gold, 63c
Galvanized Pump Chain.... ₱ lb 14c
German Halter Chain.... new list, Jan. 1, dis 15 %
German Coil.... new list, Jan. 1, dis 15 %
Jack Chain, Iron.... dis 50 %
" Brass.... dis 40 %

Chalk.
White.... ₱ gross, 50c
Red.... ₱ gross, 75c
Blue.... ₱ gross, 90c
Crayons.... ₱ gross, 14c

Cherry Stoners.
Family.... ₱ doz $8 50

Chisels.
Socket Firmers.... dis 60&10 %
Socket Framing.... dis 60&10 %
Socket Corner.... dis 60&10 %
Tanged Firmers.... dis 45&10 %
Butcher's.... $5 50 to £ gold—new list
Newbould's.... $5 50 to £ gold
Spear & Jackson's.... $5 50 to £ gold—new list

Clamps.
Cabinet.... dis 60&10 %
Judd's.... dis 45&10 %
Lambert's.... dis 20 %
Providence Tool Co.... dis 10 %

Clips, Axle.
Norway or Best.... dis 30 %
Superior.... dis 50 %
"Star," Superior Philadelphia.... dis 45&5 %

Coal Shovels.
Iron Handled.... ₱ doz, $ 95 @ 1 25
Wooden Handled.... ₱ doz, 1 00 @ 2 00

Coal Hods.—Smith, Burns & Co.... dis 15 @ 25 %

	14	15	16	17	18 inch.
Japanned	$6 00	6 25	6 75	7 50	8 00 per doz.
Galvanized	9 50	10 00	10 75	11 50	12 50 "

Morning Glory Funnel Hods—

No.	15	16	17
Japanned	$9 00	10 50	12 00 per doz
Galvanized	13 00	14 50	16 00 "

Sidney Shepard & Co.'s new list.... dis 10 %

Cockeyes.... dis 30 %

Cocks.
Brass Racking.... dis 20&10 %
Lock and Globe.... dis 20&10 %

Coffee Mills.
Board and Box.... dis 15 %
Increase Wilson's.... new list dis 15 %
Selsor's Pat.... $9 50, $10 50—dis 25 %
French Steel.... dis 15 %
The Swift.... dis 25 %
"American".... dis 20 %
Enterprise Mfg. Co.... dis 20&10 %
Diamond, per doz $4 00.... dis 10 %

Compasses and Dividers.
Bemis.... dis 35 %
Cook's.... dis 15 %
Excelsior.... dis 30 %
Peck Stow & Wilcox.... dis 25 %

Coopers' Tools.
Bradley's.... dis 15 @ 20 %
Chas. E. Little.... dis 20 @ 25 %
Swan & Brombacher.... dis 15 @ 20 %

Corkscrews..... dis 25 %

Corn Knives and Cutters.
Bradley's.... dis 10 %

Croquet.—Phineas Smith.... dis 40&10

Crow Bars.
Cast Steel.... ₱ lb 11c. net
Iron, steel points.... ₱ lb 6c

Crucibles.
Gautier & Co.... ₱ No. 5½c

Curling Irons.... dis 20&10 %

Curry Combs.
Hotchkiss' and Kellogg's, Iron and Brass.... dis 25 %
Fitch's.... dis 15&10 %
Rubber.... ₱ doz, $9 00—dis 15 %
Schweitzer Mfg. Co.... dis 20 %
The Lawrence Curry Comb Co.... dis 30 %

Curtain Pins.
Silvered Glass.... old list dis 45&10 %

Cutlery.
American Table.... net list
American Pocket.... dis 25 %
Am. Pocket—Humason & Beckley Mfg. Co.... dis 20&10 %

Dippers.
Britannia.... per doz 7 50—dis 30 %; by bbl. dis 33⅓ %
Cocoa, Plain.... per doz $3 25—dis 20 %
" Rimmed.... per doz 3 75—dis 20 %

Dog Collars.
Embossed Gilt.... dis 20 %
Leather.... dis 20 %

Door Springs.
Gray's.... $7 50 ₱ doz—dis 50 %
Torrey's Patent.... $7 50 ₱ doz—dis 50 %
Palmer's Japanned No. 6.... ₱ doz $5 00
" Coppered ".... " 6 00
" Silvered ".... " 8 00
Challenge.—
Japanned.... ₱ doz $4 00 @ 6 00
Bronzed.... ₱ doz 5 00 @ 7 00
Nickel Plated.... ₱ doz 6 50 @ 9 00
1 Gross lots.... dis 10 %
5 Gross lots.... dis 20 %

Drawing Knives.... dis 60 @ 60&10 %
Bradley's.... dis 25 %
Adjustable Handled.... dis 15 %

Drills.
Ingersoll's Ratchet.... dis 25 %
Moore's Triple Acting Ratchet.... dis 20 %
Whitney's Ratchet.... dis 20 %
Blacksmiths'.... each $7 75—dis 60&10 %

Drill Chucks.
The Danbury.... each 10 00—dis 25 @ 30 %

Drug Mills.
American Drug Mills.... dis 20 %

Egg Beaters.
Monroe's.... 8 in. 10 in.
Per doz $8 00 9 00.... dis 10 %
Dover.... ₱ doz net $6 00
National.... ₱ doz $4 50—dis 20 %
Peerless.... ₱ doz $4 00—dis 10 %

Emery.
Genuine Chester—Regular Nos.... ₱ lb 7c } dis 10 %
" Flour and FF.... ₱ lb 4c }
Washington Mills—Regular Nos.... ₱ lb 8c
" Flour.... ₱ lb 5c

Enameled and Tinned Ware.
Kettles.... dis 35 %
Sauce Pans.... dis 25 %
Glue Kettles.... dis 20 %
Tinned Saucepans.... dis 25 %

Escutcheons.
Brass Thread.... dis 60&10 %
Wood.... dis 25 %

Faucets.
Cork Lined, Wood.... dis 60 %; by bbl. 60&7½ %
Fenn's.... dis 50 %
" Cork Stops.... dis 40 %
Star.... dis 55&10 %
Frary's Patent Petroleum.... dis 15&10 %
Taylor's Pattern ".... dis 20&10 %
Wood and Metallic.... dis 40 %

Felloe Plates.... ₱ lb 14c; dis 10 %

Files.
American File Co.... $5 00 to £ currency—dis 10 %
Nicholson.... $5 00 to £ currency—dis 12½ %
Hartford File Co.... $5 50 to £ currency—dis 10 %
Newbould's.... 5 25 to £ gold
J. & Riley Carr's Files and Rasps.... 5 50 to £ gold
Stubs'.... 8 50 @ 9 00 to £ gold
Butcher's.... 5 50 to £ gold
Walter Spencer & Co.'s "Diamond".... 5 25 to £ gold
Spear & Jackson's.... 5 00 to £ gold
Hargreaves, Smith & Co.'s.... 5 00 to £ gold
Jowitt's.... 5 25 to £ gold
"Western".... 5 00 to £ net
W. K. & C. Peace's "Imperial".... 5 25 to £ gold
R. Ibbotson.... 5 00 to £ gold
Beam & Murray, "Cyclops".... 4 85 to £ gold
Fisher's.... 4 75 to £ gold
Goodlad's.... 4 00 to £ gold
Moss & Gamble.... 5 25 @ 5 50 to £ gold
Thos. Turner & Co. (Peter A. Frasse & Co.) 5 00 to £ gold
" " Horse Rasps.... 5 50 to £ gold
"Philo Sheffield," P. T. Co.... 5 00 to £ gold

Floral Tools.... dis 25 %

Fluting Machines.
Mrs. Coles, 7 inch rolls.... 6 50
" " 5 ".... 5 50
Knox, with 4-inch Rolls.... 5 00 each dis 12½ %
" " 6 " ".... 6 00 each dis 12½ %
O. K.... 6 50 each net
Peerless, 4-inch Rolls.... 4 00 each net
" 5 " ".... 4 75 each net
Excelsior, No. 1.... 4 75 each net
" No. 2.... 6 50 each net
Diamond.... 7 50 each net
Climax 7-inch Rolls.... 8 00 each net
" 4½ ".... 6 50 each net
Empire.... 4 00 each net
Eureka, No. 1, 7-inch Roll.... 8 00 each net
" No. 2, 5-inch Roll.... 6 00 each net
K. F. M., 4½-inch Roll.... 5 50 each dis 15 %
" 6-inch Roll.... 6 00 each dis 15 %
Myers Fashion Fluter, 4½-inch Rolls.... 3 00 each net
" Convex Brass Fluter, Sad Iron attachment.. $1 75
Domestic Fluter.... $1 75 each net
Fairy, Self-Heater.... 8 00 each net
Geneva Hand Fluter.... $15 00 per doz net
Champion, 6 inch rolls.... $6 00 each dis 10 %
" 4 inch rolls.... $2 00 each dis 10 %

Fluting Scissors.... dis 20&10 %

Forges.
Keystone Portable Forge Co.'s.... dis 20 %
"Empire" (W. P. Kellogg & Co.).... dis 20 %

Forks.
Hay, Manure & Spading.... dis 25 %
Plated A 1.... dis 40, 10&5 %

Freezers.
Champion.... dis 33⅓
Torrey's.... dis 50 %

Fry Pans.—P. S. & W.
Tinned.... dis 30 %

₱ doz	$3 00	3 25	3 62	4 00	4 50	5 00	5 50	6 00	7 50
No.	0	1	2	3	4	5	6	7	8

Smith, Burns & Co., "Excelsior" Polished.... dis 35 %

₱ doz	$3 70	4 00	4 70	5 30	6 00	7 00	8 00	9 00
No.	1	2	3		5	6	7	8

Gas Stoves.
Tiff & Howard.... dis 20 %

Gauges.
Marking.... dis 45&10 %
Wire.... dis 10 %

Grind Stones.
J. F. Green & Bro.... dis 20 %

Grind Stone Fixtures.... dis 50&10 %

Hammers.
Emmet Hammer Co.... dis 25 %
Humason & Beckley Mfg. Co.... dis 16⅔&10 %
Maydole's, new list.... dis 5 %
Cheney's.... new list net
Verree.... dis 5 %
Yerks & Plumb.... dis 12½ %
Minot & Co.... dis 15 %
Magnetic Tack.... dis 20&10 %
Warner's.... list net

Hand Cuffs and Leg Irons.
Tower's.... dis 25 %

Handles.
Wrought Chest.... dis 60&10 %
Flush Chest.... dis 60&10 %
Lifting.... dis 60&10 %
Coffin.... dis 50&10 %
Saw and Plane.... dis 20&10 %
Hammer and Hatchet.... dis 10 %
Greensboro', Axe, Pick, Hammer, &c.... dis 10 %
Woolworth Axe, Pick and Sledge.... dis 10 %
Brad Awl.... per gross $3 50—dis 20&10 %
Hickory Firmer Chisel, ass'td " 5 25—dis 10&10 %
" " " large " 6 25—dis 10&10 %
Apple " " ass'td " 6 00—dis 10&10 %
" " " large " 7 00—dis 10&10 %
Socket " " ass'td " 3 50—dis 10&10 %
" Framing " " " 6 00—dis 10&10 %
File.... " " 3 50—dis 10&10 %
Auger.... " " 5 50—dis 10&10 %
" large " 6 50—dis 10&10 %

Hangers.
Barn Door.... dis 65&10 %
"Anti-Friction" (Rider, Wooster & Co.).... dis 30 %
Novelty.... dis 30 %

Harness Snaps.
Henshaw's.... dis 25&10 %
Judd's.... dis 40 %
Fitch's.... dis 30 %
Hotchkiss'.... dis 10 %
Andrews'.... dis 25 %
Sargent's.... new list dis 50&10 %
New York Wire.... dis 20&20 %

Hatchets.—Isaiah Blood.... dis 16 %
Shingling, Nos. 1 2 3.... ₱ doz $7 50 8 00 8 50
Claw, " 1 2 3.... ₱ doz 8 50 9 00 9 50
Lathing. " 1 2 3.... ₱ doz 7 50 8 00 8 50
Hunt's.... dis 10 %
Shingling, Nos. 1 2 3.... ₱ doz $7 25 8 00 8 75
Claw, " 1 2 3.... ₱ doz 7 75 8 50 9 25
Lathing. " 1 2 3.... ₱ doz 7 50 8 25 9 00
Hurd's.... dis 20 %
Shingling, Nos. 1 2 3.... ₱ doz $8 00 8 50 9 00
Claw, " 1 2 3.... ₱ doz 9 00 9 50 10 00
Lathing, " 1 2 3.... ₱ doz 8 00 8 50 9 00
Newark's Edge Tool Co.'s.... dis 25 %
Shingling, Nos. 1 2 3.... ₱ doz $6 50 7 00 7 50
Claw, " 1 2 3.... ₱ doz 7 25 7 75 8 25
Lathing, " 1 2 3.... ₱ doz 6 50 7 00 7 50
Yerkes & Plumb.... dis 12½ %
Shingling, Nos. 1 2 3.... ₱ doz $7 00 7 50 8 00
Claw, " 1 2 3.... ₱ doz 7 50 8 00 8 50
Lathing, " 1 2 3.... ₱ doz 7 00 7 50 8 00
Simmon's.... dis 15 %
Shingling, Nos. 0 1 2 3.... ₱ doz $7 50 8 00 8 50 9 00
Claw, " 1 2 3.... ₱ doz 9 00 9 50 10 00
Lathing, " 1 2 3.... ₱ doz 8 00 8 50 9 00
Broad, " 1 2 3.... ₱ doz 9 00 10 00 12 00
" " 4 5 6.... ₱ doz 14 00 16 00 18 00
" " 7 8.... ₱ doz 20 00 22 00
Elephant.... dis 25 %
Shingling, Nos. 1 2 3.... ₱ doz $8 00 8 50 9 00
Claw, " 1 2 3.... ₱ doz 9 00 9 50 10 00
Lathing. " 1 2 3.... ₱ doz 8 00 8 50 9 00
J. P. Verree & Co.... dis 5 %
Shingling, Nos. 1 2 3.... ₱ doz $7 00 7 50 8 00
Claw, " 1 2 3.... ₱ doz 7 50 8 00 8 50
Lathing, " 1 2 3.... ₱ doz 7 00 7 50 8 00
Underhill's.... dis 10 %
Shingling, Nos. 1 2 3.... ₱ doz 7 25 8 00 8 75
Claw, " 1 2 3.... ₱ doz 7 75 8 50 9 25
Lathing, " 1 2 3.... ₱ doz 12 00 11 00 13 00

Hinges.
Gate, Western.... ₱ doz $6 25—dis 60&10 %
" N. E.... ₱ doz 11 25—dis 6 &10&10 %
" N. Y. State.... ₱ doz 7 20—dis 60&10 %
Rolled Plate.... dis 75 %
" Raised.... dis 75 %
Wrought Strap and T.... dis 25&10 %
Providence Plate. {6 and 8 in. list 11c. / over 8 in. list 9½c.}.... dis 25&10 %
Screw Hook and Strap.... {8, 10, 12 in. 7½c / 14 to 36 in. 5¾c}.... net
Heavy Welded Hook.... {8 to 12 in., 9c / 14 in & up, 8½c} dis 10 %
Screw Hook and Eye.... {⅜ to 1 in., 9½c / ⅝ in. 10½c / ½ in. 12½c}.... net

Hoes.
Solid Shank, C. S.... ₱ doz $8 00—dis 30 %
Socket.... ₱ doz 9 00—dis 30 %
Riveted Eye.... ₱ doz 5 00—dis 30 %
Grub.... dis 20 %
Planters'—Winsted.... add 10 %
Scovill.... add 33⅓ %
Scovill Pattern (Winsted).... add 20 %

Hooks.
Harness.... dis 60, 10&5 %
Bird Cage.... dis 70&10 %
Cotton.... dis 50 %
Belt.... dis 50&10 %
Clothes Line.... dis 60&10&10 %
Bench—Skinner's.... per doz $8 00, dis 30&10 %
Bench—Hotchkiss' $5 00 ₱ doz.... dis 10 %
Bench—Weston's No. 1, $6 00; No. 2, $7 00 per doz net
" —McGill's.... $3 00 per doz, dis 10 %
Wardrobe, Japanned.... new list dis 60, 10&10 %
Hat and Coat ".... new list dis 60, 10&10 %
Wrought Staples and Hooks and Staples.... dis 70&10 %
Screw Hooks and Eyes, revised list.... dis 70, 10&10 %
Grass.... dis 2 %
Whiffletree—Patent.... dis 30 %
Hooks and Eyes—Malleable Iron.... dis 55 %
" " Brass.... dis 55 %

Horse Nails.
Putnam's.

No.	5	6	7	8	9	10
	32c	28c	26c	25c	24c	23c

In lots 2000 lbs. dis. 5 %.
Ausable Horse Nail Co.

No.	5	6	7	8	9	10
Ausable	30c	27c	25c	24c	25c	22c
Pointed and Polished	31c	28c	26c	25c	24c	23c
Pointed and Blued	32c	29c	27c	26c	25c	24c

In lots of 1000 lbs., 5% discount.
Brundage.

No.	5	6	7	8	9	10
	29c	26c	24c	23c	22c	21c

In lots of 500 lbs., dis. 5 %.
American Pressed.

No.	5	6	7	8	9	10
	22c	20c	20c	20c	20c	20c

In lots of 1000 lbs. dis 5 %.
Perkins Finished (ready to drive).

No.	5	6	7	8	9	10
	31c	28c	26c	25c	24c	23c

In lots of 1000 lbs. dis 5 %.
Buffalo Forged.

No.	6	7	8	9	10
	28c	26c	25c	24c	23c

Globe (Pointed and Polished).

No.	5	6	7	8	9	10
	31c	28c	26c	25c	24c	23c

In lots of 1000 lbs., 5 % discount.
National (Pointed and Polished).

No.	5	6	7	8	9	10
Patent Finish	28	25	23	22	21	20
Extra "	30	27	25	24	23	22

In lots of 1000 lbs., dis 5 %.
Vulcan (Blued, pointed, ready to drive).

No.	5	6	7	8	9	10
	33c	30c	28c	27c	26c	25c

In lots of 500 lbs., 5 % discount.
" 1000 lbs 7½ % discount.
New London Horse Nails.

No.	6	7	8	9	10
Great Western	27c	25c	24c	23c	22c
U B	29c	27c	26c	25c	24c

In lots of 1000 lbs., dis 5 %.
Star Brand.... ₱ lb 16c
Morgan.... 14c

Horse Shoes.
Burden.... ₱ keg, $5 85
R. I. Horse Shoe Co., Perkins Pattern.... ₱ keg, 5 85
" " R. I. Pattern.... ₱ keg, 6 35
Mule Shoes.... ₱ keg, 6 85

Ice Picks.
Iron.... ₱ gross $12 00 @ $16 00 net
White's.... per doz $2 50 dis 10 %
W. H.... per doz 1 00 dis 10 %
Dunlap's.... per doz 3 00 net

Kettles.
Brass.... ₱ lb 55c net
In lots of 500 lbs.... ₱ lb 50c net

Knives.
Ames' Butcher Knives.... dis 20 %
" Shoe ".... dis 15 %
" Bread ".... ₱ doz $1 50—dis 15 %
Hay and Straw. "Wadsworth's".... dis 20 %
Lothrop's Cocoa Handle Lap Bolster Butcher Knives.... dis 25 %

Knobs.
Carriage.... dis 60&10 %
Base—Common.... net
" Plush Tip.... dis 10 %
" Elastic End.... reduced list dis 10&10 %

Ladles.
Melting.... dis 20 %

Lanterns.
Peerless.... dis 10 %
Brady's Patent.... dis 10 %
Ætna.... dis 10 %
Yankee.... dis 10 %
De Beque.... dis 10 %

Lemon Squeezers.
Porcelain Lined.... per doz $7 00, dis 10 %

Lines.
Linen Fish.... dis 10&10 %
Cotton Chalk.... dis 40 %
Silver Lake Chalk.... dis 10&10 %
Mason's.... dis 10&10 %
Galvanized Wire Clothes.... $1 per 100 ft. dis 30 %

Locks and Latches.
Cabinet—Eagle.... dis 25 %
Cabinet—Gaylord.... dis 25 %
Langstroth & Crane.... dis 40 %
Trunk.... dis 10 %
Continental.... dis 15 %
Shepardson's.... dis 20 %
Romer's Padlocks.... dis 15 %
Scandinavian Jail.... dis 10 %
American Lock Co.... dis 33⅓ %
Plate.... dis 25 %
Pad.... new list dis 50, and 2 % for cash
Barnes & Deitz.... dis 25 %
Yale Lock Co.... dis 40 %
Sargent & Greenleaf.... dis 20 %
Trenton / Branford / Norwich / Russell & Erwin / Norwalk / Nashua / Mallory, Wheeler & Co. / P. & F. Corbin / Parker & Whipple / Jacobus & Nimick Mfg. Co.... New list dis 45 %. 2 % extra for cash.

Mallets.
Hickory and Lignumvitæ.... dis 20 %

Meat Cutters.
Dixon's (P. S. & W.).... dis 10 %

No.	1	2	3	4
₱ doz.	$14 00	$17 00	$19 00	$30 00

Hales'.... dis 25 %

No.	11	12	13
₱ doz.	$27 00	$33 00	$42 00

Miles Challenge.... dis 20 %

No.	1	2	3
₱ doz.	$22 00	$30 00	$40 00

Perry's Champion (P. S. & W.).... dis 10 %

No.	200	300	400
₱ doz.	$22 00	$27 00	$40 00

Woodruff's (P. S. & W.).... dis 10 %

No.	100	150
₱ doz.	$15 00	$18 00

American.... dis 25 @ 25&5 %

No.	1	2	2½	3	4	B	5
Each	$6 00	$9 00	$12 00	$15 00	$30 00	$60 00	$75 00

Molasses Gates.
Stebbins' Pattern.... dis 60&10 %
Tinned ends.... dis 40&10 %
Patent Self-Measuring.... per doz $42 00—dis 20&10 %
Bush's.... dis 20 %
Lincoln's.... dis 50&10 %

Mortars and Pestles.
Iron.... net

Mouse Traps.
Wood Choker.... ₱ doz holes. 16 @ 18c
Round, Wire.... ₱ doz $1 50 to 2 00 net
Square, ".... ₱ doz 2 00 to 2 50 net
Cage, ".... ₱ doz 2 50, dis 10 %

Mowers, Lawn.
Excelsior.... dis 25 %

Nails.... 10d $3 75 @ 3 90

Nail Pullers.
Capewell's Giant.... per doz $30 00 net

Nuts and Washers.
Nuts.... large, 6c; small, 8c off list.
Washers.... large, 8c; small, 10c off list.

Oil Stones.
Washita No. 1.... ₱ lb 22c
Washita Slips.... ₱ lb 45c
Washita No. 2.... ₱ lb 17c
Arkansas.... ₱ lb 1 25
Hindostan.... ₱ lb 6c dis 10&10 %
" Slips.... ₱ lb 10c dis 10&10 %

Oilers.
Miller's Zinc.... dis 30 %
" Brass and Copper.... dis 25 %
Olmsted's.... new list dis 25&10 %
Broughton's.... dis 25&5 %
Malleable.... per doz $5 00 dis 10 %
Common Tin.... dis 30&10 %
" Zinc.... dis 30&10 %
" Brass and Copper.... dis 30&10 %
Prior's.... dis 30&10 %

Ox Shoes.
Concave.... ₱ lb 13c net

Ox Balls.... dis 60&10 %

Pencils
Rope's Carpenters'.... dis 30&10 %
Dixon's Lead.... ₱ gross $4 50 net
" Lumber.... ₱ gross 9 00 net

Picture Nails and Knobs.
Brass Head.... dis 60&10 %
Richards' Patent.... dis 40 @ 40&10 %
Judd's.... dis 60&10 %

Pinking Irons.... per doz $2 75—dis 65 %

Planes.
Auburn Tool Co.'s.... dis 30&10 %
Ensenore, Bench.... dis 50 %
Chapin's, 1st quality.... dis 25&10 %
Chapin's 2d quality.... dis 33⅓&10 %
Greenfield Tool Co.... dis 25&10 %
"New York".... dis 40 %
Sandusky Tool Co., 1st quality.... dis 35 %
" " 2d " (Ogontz).... dis 50 %
Ohio Tool Co., 1st quality.... dis 35 %
" " 2d quality (Sciota).... dis 50 %
Owasco Tool Co., 1st quality.... dis 30&10 %
" " 2d quality.... dis 50 %
Howland's, 1st quality.... dis 30&10 %
" 2d quality (Cayuga).... dis 40&10 %
Bailey's Patent Adjustable.... dis 20&10 %
Plane Irons, Butcher's.... $5 50 to £ gold—new list
" Auburn Tool Co.'s.... dis 25 %
" Chapin's.... dis 10&10 %
" Greenfield Tool Co.... net list
" Ohio Tool Co.... dis 10 %
" Spear & Jackson's.... 5 50 to £ gold—new list
" Sandusky Tool Co.... dis 10 %
Plow Bits, Greenfield Tool Co.... dis 10 %

Pliers.
Button's Patent.... dis 33⅓ %

Plumbs and Levels.
Chapin's.... dis 66⅔&10 %
Standard Rule Co.'s New Adjustable.... dis 60&10 %
Standard Rule Co.'s Non-Adjustable.... dis 60&10&10 %
Stanley R. & L. Co.'s Pat. Adjustable.... dis 60&10 %
" " " Non-Adjustable.... dis 60&10&10 %
Pocket Levels.... dis 50&10 %
Johnson's Patent Adjustable.... dis 60&10 %

Pulleys.
Hot House and Tackle.... dis 60&10 %
Jap'd Screw.... dis 60&10 %
Brass Screw.... dis 60&10 %
Jap'd Side.... dis 60&10 %
" Clothes Line.... dis 60&10 %
Hay Fork.... per doz $4 50 @ 5 00, dis 10 %

Pumps.
Douglas Cistern, etc.... new list dis 25 %
" S. & F.... new list dis 20 %
Union Mfg. Co's. Cistern and Pitcher.... dis 25 %
" " " Rams.... dis 20 %
" " " Garden Engines.... dis 10 %
Cucumber (Burlingham & Purdy)—
6 ft. No. 3, with 12 ft. pipe.... $4 00 net
6 ft. No. 1, with 12 ft. pipe.... 4 50 net
From 6 to 36 ft. add 20 cents per ft.
Pipe, 8c. per ft.; Coupling, 20c. per ft.

Punches.
Belt or Drive.... dis 25 %
Spring.... dis 20 %

Rail, Sliding Door.
Wrought Brass.... ₱ lb 40c., dis 10 %
Iron, Painted.... dis 60&10 %

Rakes.
Cast Steel.... dis 30 %

$8 00	9 00	10 00	11 00
8	10	12	14 teeth.

Malleable.... dis 30 %

$5 00	5 50	6 00	6 50
9	11	13	15 teeth.

Razor Straps.
Evan's.... dis 25&10 %
Genuine Emerson.... dis 25 %
Imitation Emerson.... ₱ doz $2 75—dis 35 %
Hunt's.... dis 35 %
Chapman.... dis 10 @ 15 %
Torrey's.... dis 10&10 %
Saunder's.... net

Rivets.—Old Colony.
Iron and Tinned.... dis 30 %
In bulk.... dis 7½ %
Copper Rivets and Burrs.... new list dis 30 %

Rivet Sets.... net

Rods.
Stair.... new list dis 33⅓ %
American Patent.... dis 30 %

Rollers.
Barn Door.... revised list dis 60, 10&10 %
Novelty.... dis 10 %

Rope. Manufacturers' List.
Manila.... ½ inch and larger ₱ lb 16 c
".... ⅜ inch ₱ lb 16½c
".... ¼ and 5-16 inch ₱ lb 17 c
" Lath Yarn, Fine Tar'd.... ₱ lb 17 c
" Hay Rope.... ₱ lb 16½c
Sisal.... ½ inch and larger ₱ lb 13 c
".... ⅜ inch ₱ lb 13½c
".... ¼ and 5-16 inch ₱ lb 14 c
" Hay Rope.... ₱ lb 13½c

Rules.
Chapin's Boxwood.... dis 66⅔&10 %
" Ivory.... dis 50&10 %
Hubbard & Curtiss Mfg. Co.... dis 60&20 %
Stanley Rule and Level Co.'s Ivory.... dis 50&10 %
" " " Boxwood.... dis 60&10&10 %
Standard Rule Co.'s Boxwood.... dis 60&10&10 %
" " " Ivory.... dis 50&10 %

Sad Irons.
.... ₱ lb 4c net
Sad Iron, Nickel Stand attached.... ₱ lb 9c

Sand Paper..... dis 15 %
Beader & Adamson's (Flint) 00 to 1½.... $4 25 ₱ ream
" " " 2, 2½ & 3.... 4 75 "
Assorted.... 4 25 "
Star.... ₱ ream $3 25
Emery.... ₱ ream $6 50 @ 11 50
H. B. & M. Roman Flint.... dis 15 %
Cowdin Mfg. Co.... dis 7½ @ 10 %
Diamond Flint, 00 to 1½.... per ream $4 25
" " 2, 2½, 3 and assorted.... " 4 75
" Emery Paper.... per ream $6 50 to $11 50

Sash Cord.
Common.... ₱ lb 20 @ 22c. net
Silver Lake Flax.... ₱ lb 55c. net
" " Cotton.... ₱ lb 65c. net

Sash Locks.
Clark's, Nos. 1 and 2.... dis 33⅓ %
Ferguson's.... dis 33⅓ %
Norwich.... dis 15 %
Walker's.... list net

Sash Weights.
Solid Eyes.... ₱ lb 2¼c

Sausage Fillers.
Perry's (P. S. & W.).... dis 15 %

No.	1	0
₱ doz.	$15 00	$21 00

Sausage Stuffers.
Miles.... ₱ doz $20—dis 10 %
Stow.... ₱ doz No. 1, $15; No. 0, $21—dis 10 %

Saw Frames.... dis 10&10 %

Saw Rods.... $10 list, dis 10&10 %

Saws.
Spear & Jackson's old pattern.... $4 50 to £ gold
Spear & Jackson's American Pattern.... $3 55 to £ gold
John Spear.... $3 60 to £ gold
Am. Saw Co.... new list
Perforated Cross Cuts, all kinds.... 68c ₱ foot
Inserted Tooth.... dis 10 %
All else.... dis 12½ %
Disston's Circular.... dis 20 %
" Mill.... dis 25 %
" Cross Cut.... dis 15 %
" other kinds.... dis 12½ %
Livingston's Framed Wood.... dis 10 %
Livingston's Butcher and Kitchen.... dis 10 %
H. W. Peace's Circulars.... dis 10 %
Other kinds.... dis 10 %
Wm. McNiece's Hand, Cross Cut and Circular.... new list dis 15 %
Wm. McNeice's Patent Pole Pruning Saw.... dis 10 %
" " Compass Saw.... net.
E. M. Boynton's Lightning.... dis 40 % for immediate cash
" " Others.... dis 15 %
Wheeler & Clemson Mfg. Co.'s Hand.... dis 15 %
" " " " Cross-Cut.... dis 30 %

Saw Sets.
Stillman's Genuine.... ₱ doz $5 00—dis 10 %
" Imitation.... ₱ doz 3 25—dis 10&10 %
Aiken's Pattern.... ₱ doz 7 00—dis 25 %
Hart's Patent.... dis 15 %
Nash's.... dis 20&10 %
Bemis'.... dis 10 %
Aiken's Genuine.... ₱ doz $15 00—dis 25 %
Hotchkiss'.... ₱ doz 5 50—dis 10 %
Common Lever.... per doz $2 00—dis 10&10 %
Leach's.... dis 15 %
Foster's.... dis 25 %

Scales.
Hatch.... dis 25 %
Tea.... dis 25 %
Turnbull's.... dis 20 %
Brown's.... dis 25&5 %
Fairbanks'.... new list dis 15 @ 20 %
Howe's.... dis 15&5 %
Shattuck's Counter and Union.... dis 15 %
Chatillon's Grocers'.... dis 25 %
Eureka.... dis 25 %
Scale Beams.... dis 25&10 %
No. 1 800 to 1200 lbs.... 90c ₱ cwt
No. 2 " ".... 75c ₱ cwt

Scrapers.
Box, 1 Handle.... per doz $6 25, dis 10 %
" 2 ".... per doz 7 50, dis 10 %
Foot.... dis 60 & 10 %
Ship.... per doz $3 00 net

Screws.
American list of Jan. 1, 1874.
Flat Head Iron.... dis 52½ %
Round Head Iron.... dis 50 %
Flat Head Brass.... dis 52½ %
Round Head Brass.... dis 50 %
Round Head Silver Capped.... dis 35 %
Hand Rail.... dis 55&10 %
Coach or Lag.... dis 30&10 @ 40 %
Coach, Patent Gimlet Point.... dis 15 %
Bed.... list net
Japanned.... dis 40 %
English—Nettlefold & Chamberlain's Flat Head Iron.... dis 52½&10 %
Machine—Flat Head, Iron.... dis 60 %
" " Brass.... dis 10 %
Round Head, Iron.... dis 55 %
" " Brass.... net
Bench—Iron.... dis 60, 10&10 %
" —Wood.... dis 15 %
Hand.... dis 25&10 %
Jack—Bell Bottom.... dis 15 %

Scythes.
Blood's German Steel, Grass.... ₱ doz $9 00
" Cast " ".... ₱ doz 10 00
" Silver " ".... ₱ doz 11 00
" German " Grain.... ₱ doz 13 00
" Cast " ".... ₱ doz 14 00
" Red Rover.... 12 00
" Young America.... 9 50
" Silver Clipper.... 12 63
Scythe Snaths.... dis 20 %

Sieves.—Mann's Patent.... dis 25 %

Shears.
Cast Steel.... dis 65&10 %
Cast Iron.... dis 25&10 %
Seymour's.... dis 60&10 %

Shovels and Spades.
Ames.... new list dis 12½ %
Rowland's.... dis 30 %
Old Colony.... new list dis 10&5 %
Middleboro' Shovel Co.... new list dis 12½ %
Dunning's.... dis 20 %

Shovels and Tongs.
Iron Head.... list net
Brass Head.... dis 5 %
Polished Steel.... new list dis 15 %

Skates.
Barney & Berry's.... dis 25 %
N. Y. Club.... ₱ pair $2 75
B. & B. Club.... " 3 50
All Clamp.... " 4 25
Rink.... " 8 00
Florence Club.... per pair $3 50—dis 25 %
" Steel.... per doz $9 net

Slates.
Square Frames, Round Cornered, by case.... dis 65&10 %
Less than a case.... dis 55&10 %
Oval Frames, by case.... dis 40 @ 40&10 %
Less than a case.... dis 30 %

Spoke Shaves.
Iron.... dis 30&10 %
Wood.... dis 30 %
Bailey's.... dis 10&10 %

Spoons.
Iron.... new advanced list, dis 10 %
By the case.... dis 20 %
Britannia.... dis 45&10 %
Rogers & Bro., A 1.... dis 40, 10&5 %, cash
Derby Silver Co.... dis 50 & 5 %
German Silver.... revised list dis 30 %
Tinned (P. S. & W.)—
Teas.... $1 50 ₱ gross, net
Tables.... 2 75 " net

Stocks and Dies.
.... dis 15 %

Stove Polish.
Gem.... ₱ gross $5 00, dis 15 %
Joseph Dixon's.... ₱ gross, 6 00
Gold Medal.... ₱ gross $6 00 dis 15 %

Squares.
Steel.... dis 50 %; full cases, dis 50&10 %
Iron.... dis 50 %; full cases, dis 50&10 %
Nickel Plated.... add $2 50 @ $4 00 ₱ doz net
Try Squares and T Bevels.... dis 45&10 %
Star Try Squares and Bevels.... dis 30 %

Tacks.
Full Weight American Iron.... dis 45&7½ %
Half Weight American Iron.... dis 72½&7½ %
Carpet, new list.... dis 7½ %
Brads American Half Weight.... dis 50&7½ %
Finishing Nails.... ½ ⅝ ¾ 1 1¼ in. and over
₱ lb.... 25c 20c 18c 14c 12c dis 7½ %
Trunk and Clout.... ½ ⅝ ¾ 1 1¼ in. and over
₱ lb.... 25c 20c 18c 14c 12c dis 7½ %
Copper Tacks.... ₱ lb 50c—dis 7½ %
Iron Shoe Nails, ₱ lb 4-8 and longer, 9½c; 3½-8, 10c.... dis 7½ %
Double Pointed.... new list dis 33⅓&10 %

Tapes, Measuring.
American Flask and Cap Co.... dis 20 %
Eddy's.... dis 20 %

Thermometers.
Tin Case.... dis 50&5 %

Toe Calks.
.... ₱ lb 13c net

Tobacco Cutters.
Champion.... dis 20 %
Peck, Stow & Wilcox.... dis 10 %
Morse's.... ₱ doz $12 00—dis 10&10 %
Wood Bottom.... per doz $12—dis 33⅓ %
All Iron.... per doz $12—dis 33&10 %

Tinners' Tools and Machines.
P. S. & W.... list net

Traps.
Newhouse.... dis 20 %
Hotchkiss.... dis 20&10 %
Peck, Stow & Wilcox.... dis 30 %
Blake's Patent.... new list dis 25 %

Trowels.
Lothrop's Brick and Plastering.... dis 10 %
Disston's Plastering.... dis 12½ %
Disston's Brick.... dis 12½ %
Rose's Brick.... dis 5 %
Brades' Brick.... gold. dis 10 %
Worrall's Brick and Plastering.... dis 20 %
Garden.... dis 25 %

Tryers.
Butter and Cheese.... dis 25 %

Ventilators, Double Cone.
Keystone Portable Forge Co.... dis 25 %

Vises.
Trenton Vises, Solid Box.
30 to 160 lbs.... 16c
160 and over.... 19c
Peter Wright's.... ₱ lb 15½c. gold
Wilson's Solid Box.... dis 15 %
30 to 160 lbs.... 18c
160 and upward.... 22c
Wilson's Parallel.... dis 30 %
Backus & Union, Parallel.... dis 25 %
Buffalo, Parallel.... new list dis 20 %
Fisher & Norris' Double Screw Parallel.... dis 15&10 %
Trenton Parallel.... dis 15 %
Merrill's Parallel.... dis 15 %
Parker's.... dis 20 %
Bonney's Saw Filers.... dis 20 %
Stearn's Saw Filers.... dis 30 %

Wheel Barrows.
Pugsley & Chapman.... dis 25 %

Wheel Heads.
Brass Bushed.... per doz $3 50 net

Well Wheels.
Revised list.... dis 60&10 %

Wire.
Brass and Copper.... list
Bright and Annealed.... Nos. 0 @ 18 dis 37½ @ 42½ %
" ".... " 19 @ 26 dis 47½ @ 52½ %
" ".... " 27 @ 36 dis 52½ @ 57½ %
Coppered.... " 0 @ 18 dis 27½ @ 32½ %
Galvanized, Nos. 0 to 6.... market list dis 2½ %
Galvanized, Nos. 7 to 18.... market list dis 12½ %
Tinned.... dis 20 @ 25 %
Cast Steel.... 5 @ 10 %
Tinned Broom Wire.... dis 25 @ 30 %
Galvanized Telegraph, Nos. 8 and 9.... ₱ lb 8¾c @ 9¼c
" " " 10 and 11.... ₱ lb 9¼c @ 10¼c
" " " 12.... ₱ lb 10c @ 11c
Annealed Fence. Nos. 8 and 9.... dis 37½ @ 42½ %
" Grape, " 10 to 14.... dis 37½ @ 42½ %
Fence Staples.... ₱ lb 8½ @ 9 %
Stubs' Steel Wire.... $7 00 to £ gold
Judd's Picture Wire.... dis 50 %

Wrenches.
American Adjustable....dis 45 %
Baxter's Adjustable "S"....dis 20 %
" Diagonal....dis 20 %
Collins & Co.'s....dis 45 %
Coes' Genuine....dis 40&5 %
" Pattern (Wrought)....dis 50 %
" " (Malleable)....dis 60&10 %
Lindsay's Patent....dis 25 %
Taft's Pattern....dis 70 %
Davis' Patent Duplex....new list dis 25 %
Bemis & Call's Patent Combination....dis 20&5 %

Wringers.
Providence....⅌ doz $58 00
Universal—Extra....⅌ doz 58 00
Novelty....⅌ doz 58 00
Sherman....⅌ doz 58 00
Reliance....⅌ doz 58 00
Monitor....⅌ doz 58 00
King....⅌ doz 58 00
Crown....⅌ doz 58 00
Eureka....⅌ doz 58 00
Independent....⅌ doz 58 00

TIN WARE AND TRIMMINGS.

STAMPED TIN WARE, dis 5 @ 10 %.
COMMON STAMPED WARE, &C.

Bucket Covers.

Quarts	½	1	2	3	4
Inch	4⅞	5 3-16	6 5-16	6⅞	7 11-16
Per gross	$2·00	2·60	3·40	4·25	5·75
Quarts	6	8	10	12	
Inch	8⅞	9⅛	9¾	10 9-16	
Per gross	$7·00	8·00	8·50	11·50	

Cake Box Covers.

	Small.	Medium.	Large.
Inch	11½	12½	13½
Per gross	$15·00	18·00	22·00

Pot Covers.

Inch	7⅞	8½	8⅞	9½	9⅞	10½
Per gross	$5·75	6·00	6·25	6·75	7·25	8·25
Inch	10⅞	11½	11⅞	12½	12⅞	13½
Per gross	$8·75	9·50	10·00	13·00	13·75	16·50

Pie, Dinner or Scolloped Plates.

Inch	6	7	8	9	10	11
Per gross	$4·00	4·50	6·00	6·50	8·50	10·50

Deep Pie Plates.
Inch....9 / 10
Per gross....$8·50 / 10·50

Jelly Cake Pans.
Inch....9 / 10
Per gross....$7·50 / 10·00

Coffee Pot Covers.

Plain	1½	2	3	4	5	6 qts.
Inch	3	3⅜	3¾	4½	5	
Per gross	$1·15	1·40	1·60	2·00	2·75	3·00
Rimmed	2½	3	3½	4	4½ inches.	
Per gross	$2·25	2·50	3·00	3·50	4·00	

T. K. Breasts only.

Inch	7½	8	8½	9	9½	10	10½	11	11½
Per gro.	$6·00	6·50	6·75	7·25	7·75	9·50	10·00	12·00	13·00

Grater Plates.
Sheet....¼ / ½ / 1
Per gross....$3·00 / 6·00 / 11·50

Scolloped Cake Pans.

	Small.	Large.
Without Tubes....per gross,	$8·00	11·50
With Tubes.... "	10·50	14·00

Stamped Square Pans.
No....½ / 1
Per gross....$7·50 / 14·50

Common Square Pans (One Sheet).
Per gross....$12·50

Milk Skimmers (Plain or Pierced).
Per gross....$4·00

Lettered Plates.
Inch....5½ / 6
Per gross....$3·25 / 4·00

Steamer Bottoms.
Add $1 per gross, or 10c. per doz. to list of Pot Covers.

Tin Stove Pipe Rings.

Inch	4	4½	5	5½	6	7
Plain....per gro.	$4·50	5·00	5·50	6·00	6·50	7·50
Jap'd or Burn'd.. "	6·00	6·50	7·00	8·00	8·50	10·00

Coffee Boiler Lips.

	Small.	Large.
To Rivet....per gross,	$0·80	1·10
To Solder.... "	1·25	

Plain Stamped Water Dippers.

	½ pint.	Pint.	Quart.	2 quarts.	2½ quarts.
Per doz	·90	1·15	1·50	1·85	2·50

RETINNNED WARE, dis 20 @ 25 %.

Retinned Milk Pans.

Qts	½	1	1½	2	3	3½	4	5	6	8	10	12
⅌ doz.	1·20	1·50	1·75	2·00	2·25	2·75	3·15	3·50	3·85	4·75	5·25	5·75

Dipper Bowls, Plain Stamped....dis 20 @ 25 %
Pints....½ / 1; Quarts....1 / 2 / 2½
Per doz. ·50 / ·75; Per doz...1·00 / 1·25 / 1·75
Dipper Bowls, Retinned....dis 20 @ 25 %
Pints....½ / ¾ / 1; Quarts....1 / 2 / 2½
Per doz. ·75 / ·95 / 1·05; Per doz..1·40 / 1·75 / 2·25

Pans.
Dish Pans, Tinned....dis 30 @ 25 %

Quarts	7	8	10	14	17	21	30
Per doz.	$8·50	9·50	11·00	13·00	16·00	19·00	30·00

JAPANNED TIN WARE.

Cannisters, Common....dis 10 %
Pound....½ / 1 / 2 / 3
Per doz....$1·10 / 1·60 / 2·50 / 3·25
Canisters, Hinged....dis 10 %
Pound....1 / 2
Per doz....$1·75 / 2·75 / 3·40 / 3·75 / 4·50
Candlesticks, Japanned....dis 10 %
No....1 / 2
Per gross....$6·00 / 7·00
Cake Boxes, Round....per nest, $[illegible]·25, dis 10 %
" Square....per nest, 4·25, dis 10 %
Chamber Pails, Japanned (Smith, Burns & Co.)...dis 10 %

Nos	2	3	4	5
Green, per doz	$8·00	9·00	10·50	12·50
Oak "	$9·50	10·50	12·00	13·50

Dust Pans, Corrugated....per gross, $22·00, dis 10 %
Box Graters....per gross, $4·00, dis 10 %
Molasses Cups....dis 10 %
Pint....½ / 1 / 2
Per doz....$1·25 / ·90 / [illegible]
Lunch Boxes, per doz....7 in $2·00; 8 in. $2 50; dis 10 %
Pepper Boxes Japanned....dis 10 %
Per gross....Small, $3·00; Large, $4·00
Toy Banks, House....dis 0 %
Tea Trays, American Tea Tray Co....dis 15 %
No....1 / 2
Per gross....$7·00 / 5·50
Toy Banks Gothic....dis 10 %
No....1
Per gross....$5·50
Toy Cups, Straight....dis 10 %
No....1 / 2 / 3
Per gross....$4·00 / 3·50 / 3·[illegible]
Toy Cups, Flaring...No. 1, $4·25; 2, $3·70 ⅌ gross, dis 10 %
Toy Pails, Covered....dis 10 %
No....1
Per gross....$4·50
Toy Rattles....per gross, $2·25, dis 10 %
Trunks, Wire Handled....per nest (5) $1·50, dis 10 %
Spittoons, Tin....per gross, No. 2, $30, No. 3, $27, dis 10 %

PLANISHED TIN WARE.

Planished Coffee Pots, Round....dis 25 @ 30 %

Each	·60	·75	·85	·95	1·15	1·25	1·30	1·40
Pints	1	2	3	4	5	6	7	8

Planished Tea Pots, Round....dis 25 @ 30 %

Each	·70	·80	·95	1·05	1·25
Pints	2	3	4	5	6

Planished Tea Pots, Oval....dis 25 @ 30 %

Each	·70	·80	·90	1·05	1·15	1·40	1·75
Pints	1	2	3	4	5	6	8

Planished Pepper Boxes, No. 1....per doz., $1·52
Planished Flour Dredges, No. 3, $2·10; 4, 2·45 ⅌ dozen.
Planished Round Coffee Biggins....dis 25 %

Pints	2	3	4	5	6	8
Each	$1·00	1·10	1·20	1·40	1·60	2·00

Planished Oval Coffee Biggins....dis 25 %

Pints	2	3	4	5	6	8
Each	$1·15	1·25	1·40	1·60	1·80	2·25

Planished Oval Chafing Dishes, Imperial Covers..dis 25 %

Inch	10	12	14	16	18	20	22	24
Each	$3·85	5·00	6·25	7·60	9·00	11·50	15·00	16·50

Planished Oval Chafing Dishes, Low Covers....dis 25 %

Inch	10	12	14	16	18	20
Each	$3·25	4·35	5·20	6·20	7·90	9·25

Planished Low Dish Covers....dis 25 %

Inch	10	11	12	14	16	18	20
Each	$ ·70	·80	1·00	[illegible]	1·50	2·00	2·75

Planished Imperial Dish Covers....dis 25 %

Inch	10	11	12	14	16	18	20	22	24
Each	$1·55	1·70	2·00	2·60	3·15	3·45	4·60	5·45	6·30

Planished Etnas, on Stands....dis 25 %

Pints	1½	2	3	4	5
Each	$0·90	1·00	1·20	1·50	1·75

Planished Liquor Mixers....dis 25 %
Nos....0 / 1 / 2
Per doz....$2·00 / 2·10 / 2·45
Planished Oval Melon Molds....dis 25 %

Nos	2	3	4	5	6	7	8	9
Each	$·60	·65	·70	·80	·90	1·00	1·15	1·35

Planished Oval Tumbler Warmers....dis 25 %
To fit 1, 2, 3, and 4 O. G. Urns....each, $2·50
Planished Oval O. G. Urns....dis 25

Nos	0	1	2	3	4	5	6	7	8
Each	$4·90	5·45	6·30	7·00	7·75	9·25	11·25	12·50	15·50

Planished Round Urns....dis 25 %

Nos	0	1	2	3	4	5	6	7
Each	$4·20	4·85	5·45	6·30	7·75	9·00	11·00	14·25

Planished Round Oyster Dishes, (Complete)....dis 25 %
Nos....1 / 2
Each....$2·10 / 2·80
Planished Oyster Dish Plates....dis 25 %
Nos....1 / 2
Each....$0·25 / 0·30
Oyster Dish Covers....dis 25 %
Nos....1 / 2
Each....$0·30 / 0·35

Tea Pot Handles—P. S. & W....dis 20 %
Stow's Patent Hollow Tea Pot Handles.
No. 1, Small 4½ inches....per gross, $11·50
No. 2, Medium, 5⅜ " .... " 12·50
No. 3, Large, 6⅜ " .... " 13·50
No. 4, Ex. Large, 7½ in., for Wash Pitchers &c. " 18·00
Stow's Patent. New Pattern.
No. 25, Small, 4½ inches....per gross, $11·50
No. 35, Medium, 5⅜ " .... " 12·00
No. 45, Large, 6⅜ " .... " 13·00
Solid Iron. Tin Tipped.
No. 10, Small, 4½ inches....per gross, $9·00
No. 15, Medium, 5⅜ " .... " 9·50
No. 20, Large, 6⅜ " .... " 10·75
Stow's Patent Hollow Tea Pot Handles, Adamantine Bronze—P. S. & W.
No. 12, Bronzed and Tin-Tipped....per gross, $13·50
Saucepan Handles. Or Best Malleable Iron.
P. S. & W....dis 20 %
Japanned.
No. 1, 5½ inches long....per gross, $3·50
No. 2, 6 " .... " 3·75
No. 3, 6½ " .... " 4·00
No. 4, 7¼ " .... " 4·25
No. 5, 8 " .... " 4·50
No. 6, 9 " .... " 4·75
Tinned.
No. 1, 5½ inches long....per gross, $4·25
No. 2, 6 " .... " 4·50
No. 3, 6½ " .... " 4·75
No. 4, 7¼ " .... " 5·25
No. 5, 8 " .... " 5·50
No. 6, 9 " .... " 5·75
Japanned....per lb., ·16
Tinned.... " ·20
Iron Kettle Ears (P., S. & W.)....dis 45 %
Half gross pairs in a package.

Tinned.

Nos	1	2	3	4	5	6	7	8
Per gross pairs	88c	$1·00	1·50	1·75	2·10	2·75	3·50	4·75

Black.

Nos	1	2	3	4	5	6	7	8
Per gross pairs	75c	88c	$1·25	1·50	1·75	2·25	2·75	4·00

Tinned Tea Kettle.

Nos	4	5	6
Per gross pairs	$1·75	2·10	2·75

Extra Heavy Tinned Kettle Ears—French Pattern.

Nos	1	2	3	4	5	6	7
Per gross pairs	$1·00	1·25	1·50	1·75	2·25	2·75	3·50

Malleable Iron Kettle Ears for Coal Hods, &c.
P., S. & W....dis 20 %
No. 10 Small....⅌ ℔, Tinned, 20c; Black, 16c
No. 20 Medium....⅌ ℔, " 20c; " 16c
No. 30 Large....⅌ ℔, " 20c; " 16c
No. 40 Extra Large....⅌ ℔, " 20c; " 16c
In cases of 100 lbs. each.
Milk Can or Boiler Handles—(P. S. & W.) 4½ in..dis 25
Plain, 8c.; Jap'd, 9c.; Tinned, 16c. per lb.; Malleable Clips or Ears to match, Tinned....20c per lb.
Toilet Ware Handles—4½ inches (P. S. & W.)....dis 35 %
Plain with drilled holes, per lb....9c
Plain with Cast " 8c
Plumbers' Scrapers—(P. S. & W)....dis 25 %
Extra quality, length 6 in., per doz....$4·00

METALS.

IRON.—DUTY Bars, 1 to 1½ cents per lb., Sheet, Band, Hoop and Scroll, 1½ to 1¾ cents per lb. Provided, that none of the above Iron shall pay a less rate of duty than 35 per cent. Pig, $7 per ton; Polished Sheets, 3 cents per lb.; Wrought Scrap, $8 per ton; Cast Scrap, $6 per ton. All subject to a reduction of 10 per cent. Railroad, 70 cents per 100 lbs. Boiler and Plate, 1½ cents per lb

Pig Iron—AMERICAN.
Foundry No. 1....⅌ ton, $30 00 @
Foundry No. 2.... " 28 00 @
Gray Forge.... " 25 00 @ 27 00
White and Mottled.... "
SCOTCH.
Coltness.... "
Glengarnock.... " 37 00 @ 38 00
Eglinton.... " 35 00
Summerlee.... "
Bar Iron.
Am. Refined, at mill....⅌ ℔ 3c
Rails.
Welsh, gold....⅌ ton, 48 00 @ 50 00
American, at works, currency.... " @ 55 00
Old Rails, currency.... "
Scrap.
Wrought Scrap.... " 33 00 @ 35 00

Bar Iron from Store.
Common Iron.
⅜ to 2 in. round and square....⅌ ton, $ 65 00
⅜x9-16 in " " .... " 70 00
⅜ in. " " .... " 72 50
2⅜ to 3 in. " .... " 70 00
1 to 6 in. wide x ⅜ and 1 in thick.... " 65 00
1¼ to 6 in wide x ¼ & 5-16 in. thick.... " 70 00
1 and 1¼ in. x ¼ and 5-16.... " 72 50
Swedish Iron
1¼x⅜ and ⅜.... " 150 00
1¼x⅜ to ⅝, and ¾ square.... " 145 00
1⅜ to 5x⅜ to ¾ and ⅜ to 2-in. square.... " 140 00
6 to 8x⅜ and ⅜.... " 155 0
Refined Iron.
⅜ to 2 in. round and square.... " 67 50
1 to 6 in. wide x ⅝ to 1 thick.... " 67 50
1¼ to 6 in. wide x ¼ and 5-16 thick.... " 72 50
1 and 1¼ x ¼ and 5-16.... " 72 50
Large Rounds.
2⅛ to 2⅞, round and square.... " 77 50
3, 3¼ and 3½ in.... " 82 50
3¾ and 4 in.... " 90 00
Rods—⅝ and 11-16, round and square.... " 70 00
½ and 9-16, " " .... " 72 50
7-16, " " .... " 80 00
⅜, " " .... " 85 00
5-16, " " .... " 91 00
¼, " " .... " 95 00
3-16, " " .... " 127 50

Sheet Iron.

	Common American and English.	R. G. American.	R. G. English.
Nos. 10 to 20....⅌ ℔	4½ @ 4¾c	5½c	6c
21 to 24.... "	4¾ @ 5c	6c	6c
25 to 26.... "	5 @ 5½c	6c	6c
27.... "	5¼ @ 5½c	6¼c	6½c
28.... "	5⅜c	6½c	6⅝c

Galvanized, 1 to 20, prime, ⅌ ℔ 10; 2d quality...⅌ ℔ 9c
" 21 to 24 " " 11 " .... " 10c
" 25 to 26 " " 12 " .... " 11c
" 27 " " 13 " .... " 12c
" 28 " " 14 " .... " 13c
Patent Polished.... " 15 @
Russia, Nos. 8 to 16....⅌ ℔ 18c
" Stained, No. 1.... " 17c
Belgian.... " 12c
One piece Corrugated Sheet Iron Elbows.

CHARCOAL IRON.

4½	5	5½	6	7 inch.
$2·50	3·50	4·50	5·25	6·50 per doz.

RUSSIA IRON.

5	5½	6	7 inch.
7·00	9·50	12·00	14·00 per doz.

BABBITT METAL.
Excelsior....cash, dis 10 %

No.	1	2		Extra.
	10c	12c	15c	20c @ 25c

COPPER.—DUTY: Pig, Bar and Ingot, 5c.; old copper 4 cents ⅌ ℔; Manufactured (including all articles of which copper is a component of chief value) 45 % ad valorem. All subject to a reduction of 10 per cent.
American Ingot....⅌ ℔ 21½c
English " ....

SHEATHING, BRAZIERS COPPER, BOLTS, &C.
Braziers Copper, ordinary sizes, over 16 oz., per square foot....35c ⅌ ℔
Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz., per square foot....38c. "
Braziers' Copper, 12 oz. per square foot and lighter. 41c. "
Circles less than 84 inch in diameter....38c ⅌ ℔
Circles, 84 inch diameter and over....41c. "
Segment and Pattern Sheets....38c. "
Locomotive Fire Box Sheets....35c. "
Sheathing Copper, over 12 oz. per sq. ft....33c. "
" " 12 oz. ⅌ sq. ft. and lighter....41c. "
Bolt Copper....35c. "
Copper Bottoms, 32 @ 38c. ⅌ ℔....net
No Copper is Sheathing except 14x48 inches, and not to exceed 34 oz. to the square foot.
The above is the present list, but the prices are not being adhered to.

O'NEILL'S PATENT PLANISHED COPPER.
14x48.
14 and 16 oz. and heavier....36c. By the case, 35c. ⅌ ℔
12 oz. and lighter....39c. " " 38c. "
Boiler Sizes.
7 in., 14x52. 8 in., 14x56. 9 in., 14x60
14 and 16 oz. and heavier....38c. By the case, 37c. ⅌ ℔
(And all sizes not over 20 inches wide.)
30x60
14 and 16 oz. and heavier....40c. ⅌ ℔
12 oz....43c. "

TINNING.
14x48, by the case....8c. ⅌ sheet
14x48, less than case....10c. "
Boiler Sizes, 7 and 8 inch....12c. "
" 9 inch....15c. "
Other sizes not larger than 30x60....2½c. ⅌ sq.
Larger than 30x60....5c. "

LEAD—DUTY: Pig, $2 per 100 lbs.; old Lead, 1½ cent per lb.; Pipe and Sheet, 2½ cents per lb. All subject to a reduction of 10 per cent.
Spanish....6½ @ 6¾c gold
German Refined....6½ @ 6¾c gold
English....6½ @ 7c gold
American....6¾c gold
Bar....dis 10 %....8¼c.
Pipe....dis 10 %....8¼c.
Tin Lined Pipe....dis 10 %....16½c.
Sheet....dis 10 %....8¼c.
Shot....dis 10 %. Drop, 8¼c.; Buck, 9 c.
Solder....No. 1, 15c; No. 2, 13¼ @ 14c

STEEL.—DUTY: Bars, Ingots, Sheets and Coils, valued at 7 cents per lb., or under, 2¼ cents; over 7 cents, and not above 11, 3 cents per lb.; over 11, 3¼ cents per lb. and 10 % ad val. Railway Bars 1¼ cents per lb. Railway Bars, in part Steel, 1 cent per lb. All subject to a reduction of 10 per cent. Provided, that Metal cemented, cast or made from Iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as Steel.

American Cast Steel.
Tool....15 @ 16c
Spring....10c
Homogeneous....12½c
Tire....12½ @ 13½c
Machinery (round and square)....10 @ 11c
File....11c
Sheet....14 @ 16c
Saw Plate, mill and mulay....14 @ 16½c
Saw Plate, gang and X cut....13 @ 14c
" circular as to size....18 @ 30c

Chrome Steel.
Tool....⅌ ℔ 20 @ 21c
Tool, extra fine.... " 40 @ 75c
Spring....⅌ ℔ 13c and upward
Machinery....⅌ ℔ 14c.
Hammer.... " 15c,
Gun or Homogeneous.... " 16c
English Steel,—payable in gold, dis 5 % cash.
" Best Cast....⅌ ℔ 18c
" Extra Cast.... " 19c
" Round Machinery, Cast.... " 11½c
" Swaged, Cast.... " 18c
" Best Double Shear.... " 18c
" Blister, 1st quality.... " 13½c
" " 2d quality.... " 11½c
" " 3d quality.... " 10½c
German Steel, Best.... " 11½c
do 2d quality.... " 10½c
Sheet Cast Steel, 1st quality.... " 18c
" " 2d quality.... " 16c
" " 3d quality.... " 14c
File Steel, Flat and ½ Round.... " 12½c
" Square and Round.... " 18c
" Mill.... " 13½c
" Taper to 4 inch.... " 17c
" Taper 8 and 3½ inch.... " 18c

SPELTER—DUTY: In Pigs, Bars and Plates, $1 50 per 100 lbs.—less 10 per cent.
Silesian, cash....6⅜ @ 7c., gold
American " ....6⅜ @ 11c., currency
TIN—DUTY: Plates, Sheets, Tagger and Terne, 15 per cent. ad val.; Electro-galvanized Plates, 2 cents per ℔; Manufactures of, not enumerated, 35 per cent. ad val.—all subject to a reduction of 10 per cent. Bars, Block and Pigs, free. Banca, subject to duty of 10 per cent.
Banca....⅌ ℔ 26c., gold
Straits....⅌ ℔ 24c., gold
English....⅌ ℔ 21½ @ 23c., gold

CHARCOAL TIN PLATE.
I C 10x14, Prime Charcoal....11·00 to 11·25
12x12, " ....11·75
14x20, " ....12·00
I X 10x14, " ....13·50
12x12, " ....14·00
14x20, " ....14·50
D C 12½x17 " ....10·75
D X 12½x17 " ....13·00
For each additional X add....2·25

COKE TIN PLATE.

	Best	2d Quality.	Ordinary.
I C 10x14	$10·50 @ 11·00	9·50 @ 10·00	9·00 @ 9·50
I C 12x12	11·00	10·50	
I C 14x20	11·25	10·50	

TERNE PLATE.

	Prime Char.	2d qual.	Coke.
I C 14x20	$10·00 @ 10·50	9·50 @ 10·00	8·00 @ 9·00
I X 14x20	12·75		
I C 20x28	21·00 @ 21·50	20·00 @ 21·00	17·00 @ 19·50
I X 20x28	26 00		
I C 20x28	25·00		

ZINC.—DUTY: Pig or Block, $1 50 per 100 lbs. Sheet 2½c. ⅌ ℔. All subject to a reduction of 10 per cent.
Sheet....cask 9½c
" ....open 10c

Paper Stock, Old Metals, &c.

(Dealers' Selling Prices.)
Canvas linen....6½ @
" cotton. No. 1....6⅜ @ 7
" " No. 2.... @ 5
White linen rags, No. 1....6½ @
" " No. 2....4½ @
Colored....2⅝ @
Mixed woolens.... @ 2½
Soft woolens.... @ 5½
Gunny bagging....1¾ @ 2
Jute Butts....2½ @ 2¾
Kentucky bagging....5¼ @ 5½
Book stock....4 @ 4½
Waste paper and scraps....1 @ 1½
Rope cuttings....1½ @ 3
Kentucky Bale rope....4 @ 4½
Oakum junk, No. 1....5½ @ 5¾
" No. 2.... @ 4
Grass rope....3½ @ 3¾
Tarred Shaking....1½ @
White Collar Cuttings, all paper....7 @
" " " muslin lined....5 @
" Envelope " ....7 @
Hard White Shavings, No. 1....6½ @
Soft " " No. 1....6 @
White Shavings, No. 2....5½ @ 6
Mixed Shavings, part white....4 @ 4½
Imperfections, No. 2, best folded sheets....5 @
" " 1, Heavy Stock....4½ @ 5
Book Stock, Mixed....3½ @ 4
" " No. 2, light....2 @ 2½
Prints....1½ @ 2
Pure Manilas....2
Bogus Manilas and Hardwares....1 @ 1½
Commons....1 @
Binders' Board Cuttings....1½ @ 2
Straw Board Cuttings....1⅛ @ 1½

Old Metal.
Copper.... @ 19
Yellow metal....14 @ 15
Brass....13 @ 14
Heavy Composition....17 @ 18
Old lead, solid....6 @ 6½
Tea lead.... 4½
Wrought iron....1½ @ 1¾
Sheet iron....0¾ @
Cast iron....1 @ 1¼
Machinery iron....1¼ @
Zinc.... 5
Pewter, No. 1....17
" No. 2....10 @ 12
Spelter....5½ @ 6

Paints, Oils, etc.

Paints.
Black, lamp—Coach Painters....⅌ ℔ 20c
" " Ordinary....6c
" Ivory Drop, fair....15c
" " best....26c
Black Paint, in oil....kegs, 8c.; asst'd cans, 11 c
Blue, Prussian, fair to best....50 @ 75c
" " " in oil....35 @ 65c
" Chinese, dry....83c
" Ultamarine....25 @ 30c
Brown, Spanish....1½c
" Van Dyke....9c
Carmine, 40....$12 00
Green, Chrome....15 @ 23c
" " in oil....18 @ 25c
" Paris....good, 30c; best, 40c
" " in oil.... " 30c " 45c
Mineral Paints....1½ @ 4c
Orange Mineral....14½c
Red Lead, American....9½c
" " English....10½c
" Venetian (N. C.) dry....2¾c
" " in oil....asst'd cans, 11c; kegs, 8½c
" Indian, dry....10c
Rose Pink....13c
Sienna American, Raw....4c
" Burnt....4½c
" " in oil....16 @ 26c
" Raw " ....15 @ 25c
Umber, Burnt....4 @ 8c
" " in oil....16 @ 21c
" Raw....3½ @ 7½c
" " in oil....18 @ 22c
Vermillion, Chinese....$2 50
" English....1 9[illegible]
" Trieste....1 65
" American, Common....25c
White Lead, American, pure dry....10½c
" " " in oil....11½c
White, Paris, English, prime....in bbls. 2½ @ 2¾c
Yellow Ochre, French....2½ @ 2¾c
" " " in oil....asst'd cans, 11c; kegs, 8½c
" " Vermont....in casks 1½c
" Chrome....17 @ 27c
" " in oil....18 @ 28c
Zinc White, American No. 1 dry....9c
" " 1, in oil....11c
" French (Paris)....11 c
" " in oil....12 c

Oils.
Linseed Raw....⅌ gal. casks, 83c. bbls, 84c
" Boiled.... " 88c. " 90c
Whale, Crude....
" Bleached Winter.... "
Sperm, Crude.... " 1·66
" Winter unbleached.... " 1·85
" " Bleached.... " 1·90
Seal, Extra Refined.... "
Lard, Pure Winter.... "
" Spring.... " 1·00
Cotton Seed, Crude.... " 60c
" Southern Yellow.... " 65c
" White.... "
Neatsfoot, Winter....70c @ $1·10
Natural Lubricating....38c @ 40c

Sundries.
Asphaltum....9c
Benzine....⅌ gal. 16c
Chalk....1½c
" Block....
Dryer, Patent, Am'n....ass't cans, 10½c.; kegs 9c
" " English.... " 11c.; " 9c
Flocks....
Frostings....50c
Glue, White....33 @ 47c
" Sheet....20c
Glaziers' Points, Zinc....9c
Gum, Copal....30c
" Damar....25c
" Shellac, English....60c
" " " dark....56c
Litharge....10c
Pumice Stone, selected Lumps....4 @ 6c
" powdered....4c
Putty in bladders....3½c
" in bulk....3c
Rotton Stone, soft, English....8c
Spirits Turpentine....37c
Whiting, Spanish....1c

Glass.
French Window—1st, 2d, 3d, and 4th qualities. Per box of 50 feet.

SINGLE.

SIZES.	I.	II.	III.	
6 x 8 to 10 x 15	$10·25	$9·25	$8·75	$8·00
11 x 14 to 16 x 24	12·00	11·00	10·00	9·50
18 x 22 to 20 x 30	15·00	13·50	12·00	10·50
15 x 36 to 24 x 30	17·50	15·25	12·50	
26 x 28 to 24 x 36	18·25	16·00	13·25	
26 x 36 to 26 x 44	20·00	18·00	14·50	
26 x 46 to 30 x 50	21·00	19·00	15·25	
30 x 52 to 30 x 54	22·50	20·25	16·25	
30 x 56 to 34 x 56	24·50	21·75	19·00	
34 x 58 to 34 x 60	26·00	24·50	21·50	
36 x 60 to 40 x 60	30·50	27·00	24·50	

DOUBLE.

SIZES.	I.	II.	III.	IV.
6 x 8 to 10 x 15	$15·50	$15·00	$14·00	$13·00
11 x 14 to 16 x 24	19·25	17·75	16·00	15·25
18 x 22 to 20 x 30	24·00	21·75	19·25	
15 x 36 to 24 x 30	28·00	24·50	20·00	
26 x 28 to 24 x 36	29·25	25·75	21·25	
26 x 36 to 26 x 44	32·00	29·00	23·25	
26 x 46 to 30 x 50	33·75	30·50	24·50	
30 x 52 to 30 x 54	36·00	32·50	26·00	
30 x 56 to 34 x 56	39·25	35·00	30·50	
34 x 58 to 34 x 60	41·75	39·25	34·75	
36 x 60 to 40 x 60	49·00	43·25	39·25	

Sizes above—$1·00 per box extra for every 8 inches.
An additional 10 per cent. will be charged for all Glass more than 40 inches wide. All sizes above 52 inches in length, and not making more than 80 united inches, will be charged in the 84 united inches bracket.
Discounts 60&10.

Grindstones, Emery, &c.

Walter R. Wood,

GRINDSTONES

283 FRONT STREET,

NEW YORK.

EMERY WHEELS AND MACHINERY

Upon which to run the same, of all kinds.

EMERY Emery Cloth, Mill Stone CEMENT. TRADE MARK. DIAMOND Tools, Oil Stones,

Soapstone Register Borders.

For particulars, address,

UNION STONE CO.,

6 Exchange and 26 Devonshire Streets, Boston, Mass.

THE TANITE COMPANY

Emery Wheels TANITE Emery Grinders

STROUDSBURG MONROE Co. PA.

LEHIGH TRADE MARK

THE LEHIGH VALLEY

Emery Wheel Co.,

Weissport, Penn.

Manufacturers of

"LEHIGH" Emery Wheels and Machines.

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ROCKY MOUNTAIN VERMILION PAINT CO. Trade Mark.

THE

Rocky Mountain Vermilion Paint

Is "Nature's Compound" of Copper, Mercury, Lead and Iron. A pure Oxide of Metals, containing no earthy matter, hence we claim and are prepared to *prove* that it is the Best and Cheapest Paint in the market. Properly mixed, we will guarantee it to cover double the surface and wear twice as long as ordinary paints. It will not Peel, Scale, Crack or Blister, though subjected to high degrees of heat. It will effectually Prevent the Corrosion of Metals, even in mid ocean. Warranted superior to red lead or any other lead, for any and all purposes for which paint is required. Please send for circulars.

All orders should be addressed, **Wm. H. Corey**, General Agent, 21 Sabin St., Providence, R. I.

Many & Marshall,

48 Warren St., N. Y.

SASH CHAIN.

Chain and Pulley for Heavy Sash.

THE BEST & CHEAPEST MADE.

Manufacturers of every description of

BUILDERS' HARDWARE,

Pure Bronzed Metal and Hand-Plated Knobs, Hinges, &c.,

Agents for Gautier's Black Lead Crucibles.

Agency and Depot of the TRENTON LOCK COMPANY.

ROMER & Co. MANUFR. OF PAD LOCKS 141.145 ORR AV. NEWARK, N.J.

ROMER & CO.,

Established 1837.

Manufacturers of **Patent Brass Pad Locks for Railroads and Switches.** Also, **Patent Stationary R. R. Car Door Locks. Patent Plan and Sewing Machine Locks.**

141 to 145 Railroad Avenue, NEWARK N.J.

Illustrated Catalogues sent on application.

Bemis & Call Hardware & Tool Co.'s

This Wrench can be furnished with Briggs Pat. Nut or Sleeve.

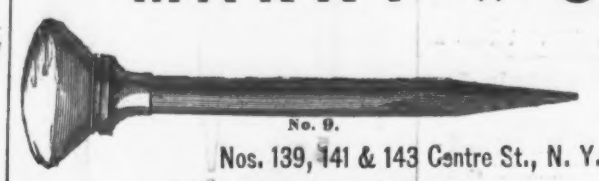
PATENT COMBINATION WRENCH.

These Wrenches are made from the best of Wrought Iron, with Steel Head and Jaw, Case-Hardened throughout. And not only combine all of the superior qualities of our Cylinder or Gas Pipe Wrenches, but also all requisite Combinations of a regular Nut Wrench. Thus making a Combination which has no equal.

For Circulars and Price List, Address,

BEMIS & CALL HARDWARE & TOOL CO. Springfield Mass.

MARKT & CO.,



No. 9.

Nos. 139, 141 & 143 Centre St., N. Y.

MANUFACTURERS AND IMPORTERS OF

Hardware Specialties,

DOOR KNOBS (Lava, Wooden, Porcelain & Mineral), **SHUTTER, PICTURE AND DRAWER KNOBS,**

Plate and Drop Escutcheons, Picture Nails and Curtain Pins,

BRIGHT WIRE GOODS,

Alarm Whistles and Mouthpieces,

FURNITURE NAILS,

Bright Halter & Coil Chains, French Wire Nails,

Wrought Iron and Brass Butts.

Having consignment of one of the largest German manufacturers of **Halter and Coil Chains**, we can offer inducements on these goods.

We shall be pleased to send our new lists and prices to those who will apply.

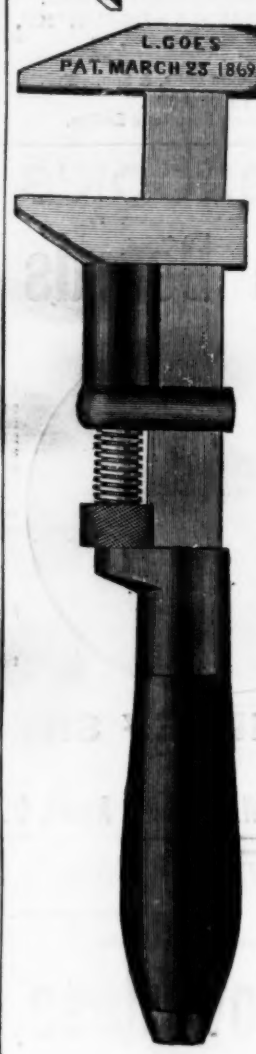
L. COES & CO.,

Manufacturers of

L. COES' Genuine Improved PATENT SCREW

WRENCHES,

Worcester, Mass.



Our Mr. L. Coes, formerly senior member of the firm of L. & A. G. Coes, established in 1839, is the Original Inventor of the Screw Wrench, and has, by making the bar *wider*, where th strain comes most severe, and screwing a nut up firmly against four *square* shoulders inside the ferrule, thereby *effectually* preventing the ferrule from being thrust back into the handle or getting loose, and making a larger screw than in the old wrench, fully succeeded in making a 12 inch wrench stronger than a 15 inch made in the usual manner. All sizes are made in this way, and are undoubtedly the strongest and best finished Screw Wrenches in the market.

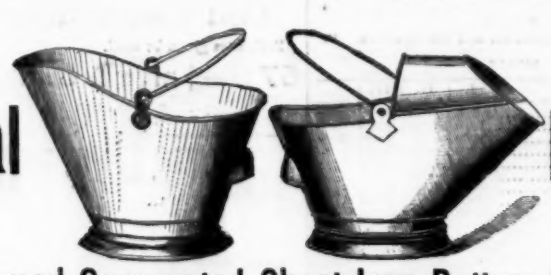
There ar *Imitations* of our goods offered for sale, that, without question, infringe on our Patents.

We hold Patents bearing date Nov. 10th, 1863 (re-issued June 1st, 1869), June 26th 1866, March 23d, 1869 (re-issued April 12th, 1870, and May 14th, 1872), which fully cover all our improvements. One of the above cuts represents a sectional view, showing the nut under the ferrule, and the strengthened bar, that part being covered by the jaw, as seen in the cut of wrench complete. None genuine unless stampe

"L. COES & CO."

Warehouse, 97 Chambers and 81 Reade Streets, New York.

HORACE DURRIE & CO., Agents.

Coal  Hods.

Stamped Corrugated Sheet Iron Bottom Riveted.

We manufacture six styles having our patent corrugated bottom, and all having the body bottom and hoop **riveted** together. Dealers before buying will find it to their advantage to get our prices, and also to beware of a **seamed** hod that is in the market, somewhat similar in shape to ours. Don't buy any but the **Corrugated Riveted Bottom Hod**, manufactured by

SMITH, BURNS & CO., 46 Cliff St., N. Y.

Also Manufacturers of

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FRY PANS, FIRE SHOVELS, ASH SIFTERS, &c. Send for Catalogue.

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John T. Lewis & Bros.,

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The Atlantic White Lead and Linseed Oil Company,

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ROBERT COLGATE & CO., 287 Pearl Street, New York.

Established 1782.

WETHERILL & BRO.,

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Offices, 31st. St. below Chestnut, PHILADELPHIA.

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Goods stamped "D. R. Barton & Co." are NOT made by me.

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Factory and Office, Mill Street, cor. of Furnace.

D. R. BARTON, Rochester, N. Y.

Iron & Brass Wood Screws.

Full assortment constantly on hand.

ALFRED FIELD & CO.,

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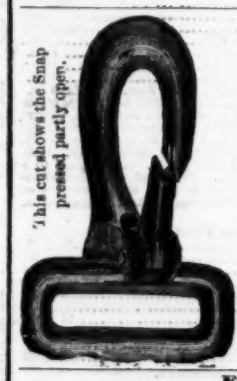

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MIDDLETOWN, CONN.,

MANUFACTURERS OF

The Celebrated "Baldwin" Plane Iron

HENSHAW'S PATENT HARNESS SNAPS

GERMAN HARNESS SNAPS,

PAT. GAFF TOP-SAIL SELF-MOUSING SHIP HOOKS

Plow, Fillettster & Dado Stops of all kinds. Set Screws for Plows, Bench Plane Starts, &c. Patent Washer Cutters. Plane Iron Screws to order of any size.

Send for Illustrated Catalogue and Price List.

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LOCKS AND LATCHES.

Fairbanks' Standard Platform and Counter Scales, Paint and Coffee Mills Builders' and Domestic Hardware generally.

New York Office, 96 Chambers St., N. Y.

Hardware.

SPEAR & JACKSON

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MANUFACTURERS OF

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Sole Agents for **LAMSON & GOODNOW MFG. CO., Shelburne Falls, Mass.**—Table Cutlery and Butcher Knives.

W. & S. Butcher's Files, Edge Tools and Razors, the largest stock in the United States.

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PLATE AND HOOK HINGES,

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Celebrated FILES AND HORSE RASPS.
Rough and Ready and
CLIPPER SCYTHES.
Warranted.

THOS. JOWITT & SON TESTED CORPORATE MARK

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"WIDE AWAKE"
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Small Brass and Iron Castings made to order.

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BUTCHERS' STEELS,
AND
SHOE KNIVES.

CORPORATE TRADE MARK. FOUR PEPPERCORNS AND A DIAMOND.

Granted A.D. 1766, by the Corporation of Cutlers of Sheffield, and protected by Act of Parliament.

THE TRADE MARK, IN ADDITION TO THE NAME, IS STAMPED UPON EVERY ARTICLE MANUFACTURED BY

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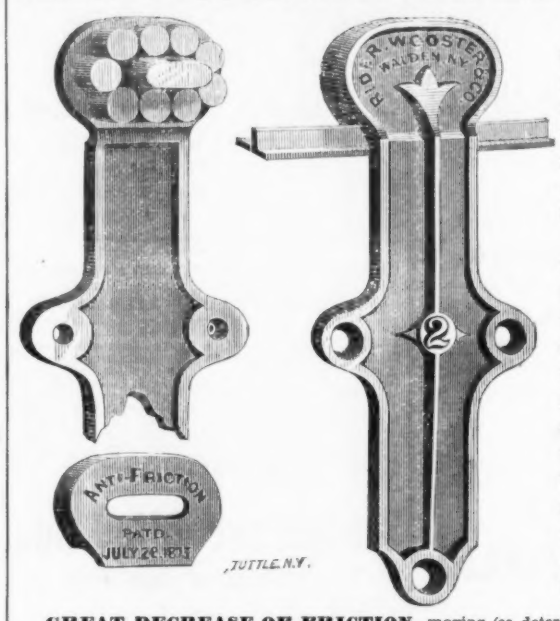
Wostenholm's IXL Pocket Knives & Razors, Butcher's Files, Tools, &c.

No. 93 Chambers Street, NEW YORK.

Anti-Friction Barn Door Hanger



This Hanger is entirely new in principle and design, and possesses marked advantages over all others, entirely obviating all the defects and annoyances hitherto experienced in the use of ordinary sheaved hangers.

In construction it is exceedingly simple, as will be seen by the cut. The weight of the door is supported by a strong stud, between which and the rail is a series of chilled iron rollers, inclosed by the front of the hanger and cap, and as these rollers pass under the stud, they are returned over it in succession. There is consequently no friction, except that of rolling surfaces. Its leading advantages are:

GREAT DECREASE OF FRICTION, moving (as determined by direct experiment) with **one-fourth the power required by any other Hanger in the world.**

Great Strength. Unlimited Durability.

No Axles and Sheaves to grind and break.

All bearing surfaces harder than steel.

Thorough protection from the weather.

It will not clog with snow and ice.

It cannot run off the track.

It causes the door to run perfectly true.

It cannot get out of order.

It is compact, Simple and Beautiful in design.

This Hanger will fit any ordinary rail, but our rail is preferable, from the fact that it has a double flange at the bottom, so that the screws will not work out and allow it to rock or tip over.

No. 1 Hanger, corresponding to 4, 5 and 6 in. Sheaves or Rollers..... per pair, $1·25
No. 2 " " 6 inch and upward..... " 1·50

One Dozen Pairs in each case.—dis 30 per cent.

RAIL, with Double Flange.....per foot, 7 cents.

200 *feet in each case.*—dis 30 per cent.

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Sole Manufacturers of the Celebrated

"Diamond" PLANE IRONS,

Of **Uniform** temper and finish. Solid **Steel Caps** and **Warranted. PATENT FORGED OX SHOES.** The **only** Shoe made with **concavity** to fit hoof, and the best and **cheapest. BENCH AND MOULDING PLANES** of every description. Also, Plow and Match Bits, Moulding and Rabbet Irons, Plane Stops, Cuts, Starts, Plates, &c., &c. Drop Forgings to order. Address for Catalogue and Prices

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Engineer, Machinist, Founder and Boilermaker,

CASTINGS of every description.

ROLLING MILL AND FURNACE EQUIPMENTS COMPLETE.

Rolls Turned for Rails, Beams, Angles, and all shapes for Iron, Steel, or Composition Metals.

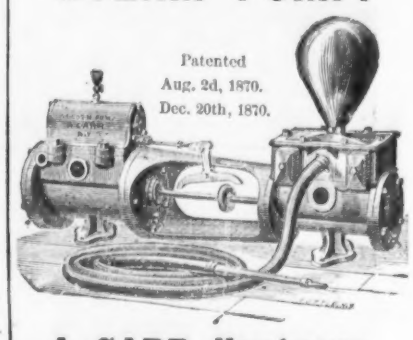
Sugar Mill, Saw Mill and Grist Mill Machinery,

AND MILLWRIGHTING IN GENERAL.

BOILERS—FLUE, TUBULAR AND CYLINDER, and all kinds of TANK AND PLATE IRON WORK.

The Selden Direct-Acting

STEAM PUMP.



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Aug. 2d, 1870.
Dec. 20th, 1870.

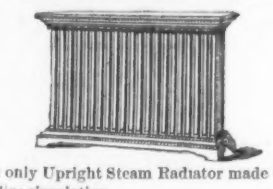
A. CARR, Manufacturer.

Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to ALL PURPOSES for which Steam Pumps are used.

It is Unsurpassed as a Mining Pump

CARR'S POSITIVE CIRCULATING

Steam Radiator.



The only Upright Steam Radiator made which has a *positive* circulation.

Selden Steam Pump, Wrought & Cas Iron Pipe, Brass Work, &c.,

for Plumbers, Steam and Gas Fitters.

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No auxiliary valves used. Direct connection between piston rod and valve movement. No knocking or jarring. Circulars and price lists sent upon application.

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FOR RAILROAD SWITCHES,

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Upon which to run the same, of all kinds.

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THE

Rocky Mountain Vermilion Paint

Is "Nature's Compound" of Copper, Mercury, Lead and Iron. A pure Oxide of Metals, containing no earthy matter, hence we claim and are prepared to *prove* that it is the Best and Cheapest Paint in the market. Properly mixed, we will guarantee it to cover double the surface and wear twice as long as ordinary paints. It will not Peel, Scale, Crack or Blister, though subjected to high degrees of heat. It will effectually Prevent the Corrosion of Metals, even in mid ocean. Warranted superior to red lead or any other lead, for any and all purposes for which paint is required. Please send for circulars.

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Chain and Pulley for Heavy Sash.

THE BEST & CHEAPEST MADE.

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Pure Bronzed Metal and Hand-Plated Knobs, Hinges, &c.,

Agents for Gautier's Black Lead Crucibles.

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Illustrated Catalogues sent on application.

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This Wrench can be furnished with Brigg's Pat. Nut or Sleeve.

PATENT COMBINATION WRENCH.

These Wrenches are made from the best of Wrought Iron, with Steel Head and Jaw, Case-Hardened throughout. And not only combine all of the superior qualities of our Cylinder or Gas Pipe Wrenches, but also all requisite Combinations of a regular Nut Wrench. Thus making a Combination which has no equal.

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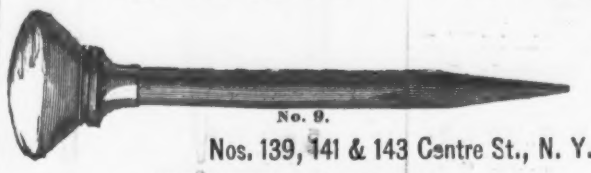

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Nos. 139, 141 & 143 Centre St., N. Y.

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DOOR KNOBS (Lava, Wooden, Porcelain & Mineral), **SHUTTER, PICTURE AND DRAWER KNOBS,**

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BRIGHT WIRE GOODS,

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Having consignment of one of the largest German manufacturers of **Halter and Coil Chains,** we can offer inducements on these goods.

We shall be pleased to send our new lists and prices to those who will apply.

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Manufacturers of

L. COES' Genuine Improved

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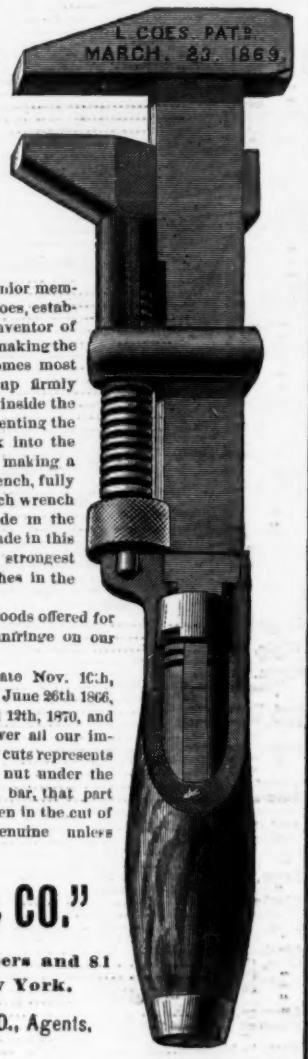
SCREW

WRENCHES,

Worcester, Mass.



Our Mr. L. Coes, formerly senior member of the firm of L. & A. G. Coes, established in 1839, is the Original Inventor of the Screw Wrench, and has, by making the bar *wider*, where the strain comes most severe, and screwing a nut up firmly against four *square* shoulders inside the ferrule, thereby *effectually* preventing the ferrule from being thrust back into the handle or getting loose, and making a larger screw than in the old wrench, fully succeeded in making a 12 inch wrench stronger than a 15 inch made in the usual manner. All sizes are made in this way, and are undoubtedly the strongest and best finished Screw Wrenches in the market.

There are *Imitations* of our goods offered for sale, that, without question, infringe on our Patents.

We hold Patents bearing date Nov. 10th, 1863 (re-issued June 1st, 1869), June 26th 1866, March 23d, 1869 (re-issued April 12th, 1870, and May 14th, 1872), which fully cover all our improvements. One of the above cuts represents a sectional view, showing the nut under the ferrule, and the strengthened bar, that part being covered by the jaw, as seen in the cut of wrench complete. None genuine unless stamped

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HORACE DURRIE & CO., Agents.

Coal  Hods.

Stamped Corrugated Sheet Iron Bottom Riveted.

We manufacture six styles having our patent corrugated bottom, and all having the body bottom and hoop **riveted** together. Dealers before buying will find it to their advantage to get our prices, and also to beware of a **seamed** hod that is in the market, somewhat similar in shape to ours. Don't buy any but the **Corrugated Riveted Bottom Hod,** manufactured by

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287 Pearl Street, New York.

Established 1782.

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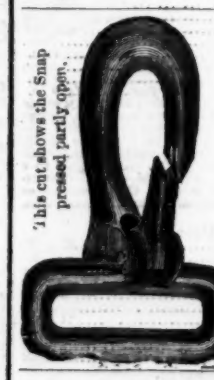

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The Celebrated "Baldwin" Plane Iron

HENSHAW'S PATENT HARNESS SNAPS

GERMAN HARNESS SNAPS,

PAT. GAFF TOP-SAIL SELF-MOUSING SHIP HOOKS

Plow, Fillettster & Dado Steps of all kinds. Set Screws for Plows, Bench Plane Starts, &c. Patent Washer Cutters. Plane Iron Screws to order of any size.

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New York Office, 96 Chambers St., N. Y.

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MANUFACTURERS OF

WROUGHT IRON BUTTS,

All our goods are manufactured from patent faced iron plates; they have a smooth face and bright finish.

163 & 165 Mulberry Street. New York.

FERNALD & SISE, Agents, 100 Chambers Street, N. Y.

QUACKENBUSH, TOWNSEND & CO.,

Successors to

SEABS, LEAVITT & CO.,

IMPORTERS AND WHOLESALE DEALERS IN

Hardware, Cutlery, &c.,

59 and 61 Reade Street, New York.

DEPOT FOR

THOMAS JOWITT & SONS, (Sheffield, England,) Celebrated FILES AND HORSE RASPS. Rough and Ready and CLIPPER SCYTHES, Warranted.

THOS. JOWITT & SON TESTED CORPORATE MARK

"BEAVER" (American, FILES AND HORSE RASPS. "WIDE AWAKE" AXES.

The Turner & Seymour Mfg. Co.,

MANUFACTURERS, IMPORTERS AND DEALERS IN

Hardware and Upholsterers' Brass Goods.

SOLE AGENTS FOR

STEPHENS' CALIPERS AND DIVIDERS,

Page's Auxiliary Jaws.

Manufacturers of Judds', Prindle's and Combination Patent Curtain Fixtures, Locks and Curtis Patent Raisin Seeder, Patent Twine Boxes, Picture Nails and Hooks, Patent Screw Picture Nail, Escutcheon Pins, Coat and Hat Hooks; also Miscellaneous Iron and Brass Goods.

Small Brass and Iron Castings made to order.

64 Duane Street, NEW YORK.

JOHN WILSON'S CELEBRATED

BUTCHERS' KNIVES,
BUTCHERS' STEELS,
AND
SHOE KNIVES.

CORPORATE TRADE MARK. FOUR PEPPERCORNS AND A DIAMOND

THE TRADE MARK, IN ADDITION TO THE NAME, IS STAMPED UPON EVERY ARTICLE MANUFACTURED BY

JOHN WILSON.

GRANTED A.D. 1766, BY THE CORPORATION OF CUTLERS OF SHEFFIELD, AND PROTECTED BY ACT OF PARLIAMENT.

BUYERS ARE SPECIALLY CAUTIONED AGAINST IMITATIONS OF THE MARK, AND THE SUBSTITUTION OF COUNTERFEITS BEARING THE NAME, "WILSON," ONLY.

Works:—SYCAMORE STREET, SHEFFIELD. ESTABLISHED in the Year 1750.

BEAM & MURRAY,

IMPORTERS OF

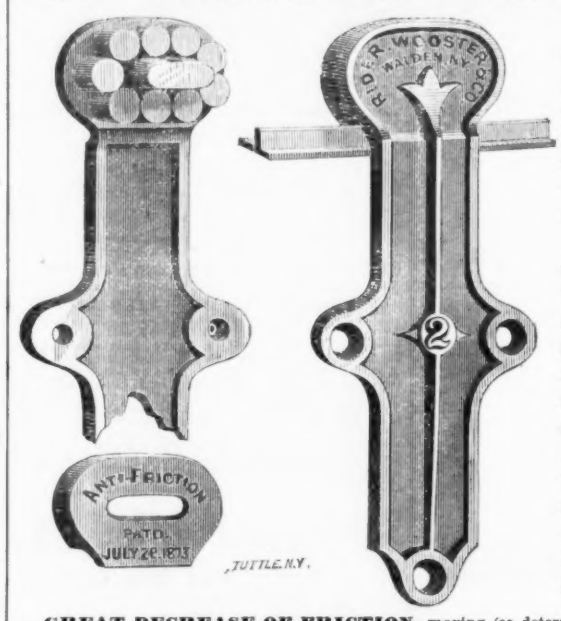
Anvils, Chains, Pocket Cutlery, Guns, Files,

BIRMINGHAM, SHEFFIELD & GERMAN HARDWARE,

Wostenholm's IXL Pocket Knives & Razors, Butcher's Files, Tools, &c.

No. 93 Chambers Street, NEW YORK.

Anti-Friction Barn Door Hanger



This Hanger is entirely new in principle and design, and possesses marked advantages over all others, entirely obviating all the defects and annoyances hitherto experienced in the use of ordinary sheaved hangers.

In construction it is exceedingly simple, as will be seen by the cut. The weight of the door is supported by a strong stud, between which and the rail is a series of chilled iron rollers, inclosed by the front of the hanger and cap, and as these rollers pass under the stud, they are returned over it in succession. There is consequently no friction, except that of rolling surfaces. Its leading advantages are:

GREAT DECREASE OF FRICTION, moving (as determined by direct experiment) with **one-fourth the power required by any other Hanger in the world.**
Great Strength. Unlimited Durability.
No Axles and Sheaves to grind and break.
All bearing surfaces harder than steel.
Thorough protection from the weather.
It will not clog with snow and ice.
It cannot run off the track.
It causes the door to run perfectly true.
It cannot get out of order.
It is compact, Simple and Beautiful in design.

This Hanger will fit any ordinary rail, but our rail is preferable, from the fact that it has a double flange at the bottom, so that the screws will not work out and allow it to rock or tip over.

No. 1 Hanger, corresponding to 4, 5 and 6 in. Sheaves or Rollers..... per pair, $1·25
No. 2 " 6 inch and upward..... " 1·50
One Dozen Pairs in each case.—dis 30 per cent.
RAIL, with Double Flange.....per foot, 7 cents.
200 *feet in each case.*—dis 30 per cent.

RIDER, WOOSTER & CO., Manu'rs,
Walden, Orange Co., New York.

WHOLESALE AGENTS

NEW YORK, Walsh, Coulter & Flagler. Russell & Erwin Mfg. Co. Quackenbush, Townsend & Co. J. Clark Wilson & Co.
BOSTON, Macomber, Bigelow & Dowse.
PHILADELPHIA, Lloyd, Supplee & Walton.
CHICAGO Hibbard, Spencer & Co.
MILWAUKEE, WIS., John Nazro & Co.

GREENFIELD TOOL CO.,

Sole Manufacturers of the Celebrated

"Diamond" PLANE IRONS,

Of **Uniform** temper and finish. Solid **Steel Caps** and **Warranted. PATENT FORGED OX SHOES.** The **only** Shoe made with **concavity** to fit hoof, and the best and **cheapest. BENCH AND MOULDING PLANES** of every description. Also, Plow and Match Bits, Moulding and Rabbet Irons, Plane Stops, Cuts, Starts, Plates, &c., &c. Drop Forgings to order. Address for Catalogue and Prices

GREENFIELD TOOL CO., Greenfield, Mass.

Warehouses: **New York, 37 Chambers St.; Boston, 22 Oliver St.** Reduced Prices for 1874.

BUSH HILL IRON WORKS,

Corner 16th & Buttonwood Streets,

PHILADELPHIA.

JAMES MOORE,

(Successor to MATTHEWS & MOORE,)

Engineer, Machinist, Founder and Boilermaker,

CASTINGS of every description.

ROLLING MILL AND FURNACE EQUIPMENTS COMPLETE.

Rolls Turned for Rails, Beams, Angles, and all shapes for Iron, Steel, or Composition Metals.

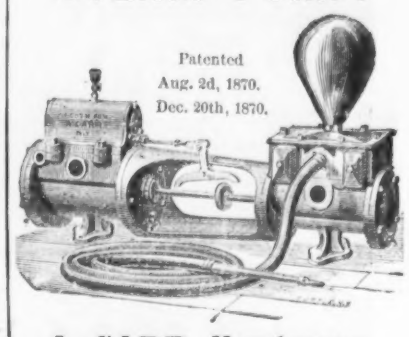
Sugar Mill, Saw Mill and Grist Mill Machinery,

AND MILLWRIGHTING IN GENERAL.

BOILERS—FLUE, TUBULAR AND CYLINDER, and all kinds of TANK AND PLATE IRON WORK.

The Selden Direct-Acting

STEAM PUMP.



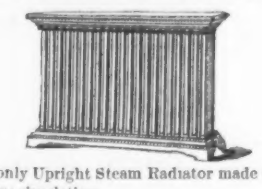
A. CARR, Manufacturer.

Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to ALL PURPOSES for which Steam Pumps are used.

It is Unsurpassed as a Mining Pump

CARR'S POSITIVE CIRCULATING

Steam Radiator.



The only Upright Steam Radiator made which has a *positive* circulation,

Selden Steam Pump, Wrought & Cas Iron Pipe, Brass Work, &c.,

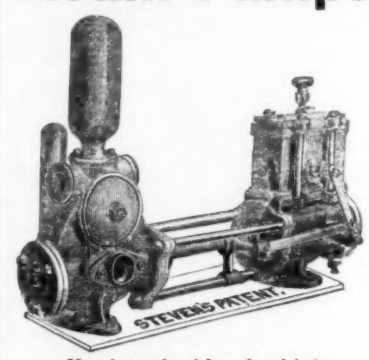
for Plumbers, Steam and Gas Fitters.

For descriptive circular and price lists, address

A. CARR 43 Cortlandt St. N. Y.

DIRECT - ACTING

Steam Pumps,



Manufactured and for sale solely by

STEELE & CONDICT,

TITAN IRON WORKS, Jersey City, N. J.

Office and Salesroom

88 Liberty Street, New York.

No auxiliary valves used. Direct connection betwee piston rod and valve movement. No knocking or jarring. Circulars and price lists sent upon application.

WILSON BOHANNAN,

Manufacturer of Patent

Brass Spring

PAD LOCKS

FOR RAILROAD SWITCHES,

Freight Cars, &c.

Cor. Broadway and Kossuth Street, BROOKLYN, E. D., N. Y.

Clement & Hawkes Mfg. Co.,

Manufacturers of

SHOVELS,

Planters' Hoes, Trowels and Machinery.

Northampton, Mass.

☞ Send for Circular and Price List.

Patent Automatic Muzzle

[From the *New York Times*, June 22.]

"Mr. Bergh has a muzzle that he recommends, as it does not FRET or WORRY the dog when on his head. By a spring the dog can open his mouth to the fullest extent, and running out his tongue pant with as much comfort as though he was not muzzled, and drink without any difficulty, but it is impossible for him to bite." The most humane invention of the age.

Manufactured by

W. T. & J. MERSEREAU, 62 Duane St., N. Y

Sold by all Hardware Dealers.

PHILADELPHIA.

(Corrected weekly by Lloyd, Supplee & Walton).

Terms, 30 days. For 60 or 90 days, interest added at 10 per cent. per annum.

Anvils.—Solid Cast Steel.....₩ lb 14c
Peter Wright's.....₩ lb, gold, 12½c
Wilkinson's.....11½c
Eagle.....11 cents currency—dis 15 @ 15&5 %
Apple Parers.—Union.....per doz $6 50 net
Skeleton.....“ 6 50 net
Victor.....“ 6 75 net
Domestic.....“ 7 00 net
Reading.....“ 7 00 net
Bay State Paring, Coring and Slicing..“ 12 00 net
“ “ Peach Parers.....“ 10 50 net
Axes.—Mann's Light.....Per doz. $13 00 @ 12 50
Hunt's Light.....“ 13 00 @ 12 50
Red Indian, all sizes.....“ 12 50 @ 12 00
Red Chiertain, all sizes.....“ 13 00 @ 12 50
Crown Prince.....“ 13 50 @ 13 00
Augers and Auger Bits.—Pierce's Pat.
Twist Bits.....dis 25 @ 30 %
Douglass' & Ives' Bits.....dis 30&10 %
Connecticut Valley Auger Bits.....dis 35&10 %
Cook's Bits.....dis 40&10 %
Jennings' Bits.....dis 10 %
Bates' Nut Augers.....dis 30&5 %
Douglass' & Ives' Augers.....dis 30&10 %
Watrous' Ship Augers.....dis 10 %
Bonney's Pat. Hollow Augers.....dis 25 %
Stearns' Patent Hollow Augers.....dis 25 %
Balances.—Landers Frary & Clark's.....dis 15 %
Chattillon's.....dis 15 %
Morton's.....dis 15 %
Common Spring with Hook.....₩ doz $1 38 @ 2 00
Bells.—Bevin Bros. Mfg Co. Light Hand Bells.....dis 60&10 %
Other makers light.....dis 65&10 %
Swiss Pattern Hand Bells.....dis 50 %
Connell's Door Bells.....dis 60 %
Great Western and Kentucky Cow.....dis 50&10 %
Boring Machines.—Bates' Mfg. Co., complete with augers.....dis 15 @ 20 %
Douglas Mfg. Co., complete with augers..dis 15 @ 20 %
Common Boring Machines, no Augers.....$4 25 @ 4 00
Angular “ “ “ .....5 25 @ 5 00
Bolts.—Eastern Carriage Bolts.....special prices
Western “ “ “ “
Philadelphia “ “ .....dis 50&5 %
Wrought Shutter Bolts.....dis 50 %
Cast “ “ .....dis 50 %
Skelly's Phila. Norway iron, finish, points.....dis 50 %
Braces.—Barber's.....dis 40&5 %
Rackus.....dis 45 @ 50 %
Bartholomew's American Ball.....dis 10&10 %
Sponard.....dis 40 @ 40&5 %
Butts.—Cast Fast Joint, Narrow.....dis 40 @ 40&5 %
“ “ Broad.....dis 50 @ 50&5 %
Cast Fast Loose Joint.....dis 50 @ 50&5 %
“ Acorn, Loose Pin.....dis 40&10 %
Wrought Loose Pin.....dis 35 %
“ Table Hinges and Back Flaps.....dis 30 %
“ Narrow.....dis 30 %
“ Loose Joint.....dis 35 %
“ Reversible.....dis 35 %
Parker's Blind Butts.....
Shepard's “ “ .....
Clark's “ “ for wood.....
Cherrytree “ “ for wood.....
Lull & Porter's.....
Clark's Mortise Butts.....
dis 50 %—dis by the case 50&5 %
Chains.—German Halter.....dis 15 @ 20 %
“ Coil.....dis 15 @ 20 %
Galvanized Pump.....₩ lb 15c
Best Proof Coil Chain—

₩ lb....	13½	10⅝	9¼	9	8¾	8½	8c gold
	3-16	¼	5-16	⅜	7-16	½	⅝ in.

By the cask, 360 lbs., discount ½c per lb. Common Chain, ¼c per lb. less than proof.
Chisels.—Socket Framing.....dis 60 @ 60&10 %
Socket Firmer.....dis 60 @ 60&10 %
Tang “ .....dis 40 @ 40&10 %
Beaty's Framing and Firmer.....dis 10 @ 15 %
Casters.—Porcelain Wheel.....dis 40&10 %
Iron and Brass Wheels.....dis 40 %
Iron Bed.....dis 40 %
Clothes Wringers.—Universal.....per doz $60 00
Novelty.....“ 60 00
Providence.....“ 60 00
Monitor.....“ 60 00
Orders for 5 dozen lots, discount $2 per dozen.
Coffee Mills.—Common Box and Side.....dis 10 @ 15 %
Patent Box and Side.....dis 10 @ 15 %
Cutlery.—American Pocket (best).....dis 25 %
Landers, Frary & Clark, J. Russell & Co. and Lamson & Goodnow Mfg. Co. Manufacturers' net prices.
Drawing Knives.—Hart Mfg. Co.'s...dis 60 @ 60&10 %
Concave Adjustable Handle.....dis 10 %
Beatty.....dis 10 @ 15 %
Fry Pans.
Tinned.....dis 30 %

₩ doz..	$3 00	3 25	3 62	4 00	4 50	5 00	5 50	6 00	7 50
No....	0	1	2	3	4	5	6	7	8

Burnished.....

₩ doz..	$4 50	5 00	5 62	6 25	7 00	7 50	8 00	8 50	9 00
No....	0	1	2	3	4	5	6	7	8

Files.
Nicholson Mill Files...new list, $5 00 to £ cur dis 12½ %
“ Bastard..... “ 5 00 to £ cur dis 12½ %
“ Taper..... “ 5 00 to £ cur dis 12½ %
Butcher's Mill.....$5 50 to £ gold
“ Bastard.....5 50 to £ gold
“ Taper.....5 50 to £ gold
Fluting Machines.
K. F. M.—4¼ in. rolls, $5 50.....dis 10 %
“ —6 in. rolls, $6 65.....dis 10 %
Mrs Knox—4 in. rolls, $5 50.....dis 10 %
“ —6 in. rolls, 6 65.....dis 10 %
Hammers.
Yerkes & Plumb's.....dis 12½ %
Hammond & Son's.....dis 12½ %
Veree.....dis 12½ %
Hatchets.
Beatty's.....dis 10 @ 15 %

Shingling and Half.	₩ doz..	$7 00	7 50	7 75	8 00
	No.....	1	2	3	

Yerkes & Plumb.....dis 15 %

Shingling and Half.	₩ doz..	$7 00	7 50	8 00	8 50
	No.....	1	2	3	4
Claw....	₩ doz.	$7 50	8 00		
	No.....	1	2		3

Hinges.—Strap and T.....dis 50&10 %
Parker's Blind.....
Shepard's “ “ .....
Clark's “ for wood.....
Cherrytree Blind for wood.
Lull & Porter's Blind.....
Clark's Mortise Blind.....
Discount 50 %. By the case 50&10 %.
dis 40&10 %
“ “ .....by the case dis 50 %
dis 40 %
Horse Nails.

Nos.	6	7	8	9	10
Ausable	27	26	24	23	22
Globe	28	26	25	24	22
Brundage	26	24	23	22	21
Nos.	5	6	7	8	9	10
Putnam	32	28	26	25	24	22

On Ausable, Globe and Brundage 1000 lb lots.....dis 5 %
Knobs.—Door, Mortise and Rim.
Makes in Combination.....new list dis 45 %
Extra discount for cash 2 %
Mineral and Rim.....dis 5 %
Locks and Latches.—Rim and Mortise.....dis 45 %
Extra discount for cash 2 %
Till and Cupboard.....dis 25 %
American Padlocks.....dis 50 %
Scandinavian Pad Locks.

₩ doz.....	$10 50	10 50	12 00	12 00	15 00	15 00	} dis 15 %
No.....	9	9¼	10	10½	11	11½	
₩ doz.....	$18 00		18 00		22 00	22 00	} dis 15 %
No.....	12		12½		13	13½	

Trunk Locks.....dis 5 @ 10 %
Thumb and Roggens Latches.....dis 25 %
Lanterns.—Square Candle and Oil.....dis 10 %
Globe for Oil.....dis 10 %
“ “ Kerosene.....dis 10 %
Tubular Lanterns.....dis 10 %
Mattocks.—Long and Short Cutter.....dis 25 %
Western Pattern.....dis 25 %
Pennsylvania Pattern.....dis 15 %
Molasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets.....dis 20 %
Stebbins' Gates.....dis 60 @ 60&10 %
Lincoln's “ .....dis 40 @ 40&10 %
Landers, Frary & Clark's Petroleum...dis 10 @ 10&10 %
Taylor's Petroleum Faucets.....dis 20 @ 20&10 %
Brass Liquor Cocks.....dis 20&10 %
Meat Cutters.—Dixon's.....dis 10 %
Woodruff.....dis 10 %
Stowe.....dis 10 %
Hale's.....dis 25 %
Stuffers.....dis 10 %
Planes.—Auburn Tool Co., “Bench”..dis 35 @ 55&5 %
Second Quality.....dis 50 %
Metallic Plane Co.....dis 25&5 %
Evans Pat. Circular.....net
Plane Irons.—American.....list net
Butcher's.....gold £, $5 50
Pick s.—Philadelphia.....net
Pittsburgh.....net
Plumb and Levels.
Stanley Rule and Level Co.....dis 60&10 %
Wm. Johnson, (Stanley List).....dis 60&10 %
Rakes.—Cast Steel Garden.....dis 33⅓ %
Malleable Garden.....dis 33⅓ %
Wood Head Iron Teeth.....dis 30 @ 40 %
Rules.—All Maker's Boxwood...dis 60&10 @ 80, 10&10 %
All Makers Ivory.....dis 50 %
Steelyards.—American Pattern.....dis 15 %

₩ doz.....	$5 50	7 00	9 00	1 00	11 00	12 00
No.....	50	100	150	200	250	300

English Pattern.....dis 15 %

₩ doz.....	$7 00	8 67	10 67	12 67	14 67	16 67
No.....	50	100	150	200	250	300

L. F. & C. Excelsior.....dis 10 %

₩ doz.....	$9 00	10 00	12 00	15 00	18 00	21 00
No.....	50	100	150	200	250	300

Scythes.—Golden Clipper, Damascus Blade, Boxed and Sharpened.....₩ doz. $11 00 net
Clipper No. 10, Boxed and Sharpened.....₩ doz $10 50
“ “ “ “ “ 10 00
Common Scythes.....₩ doz $7 00 @ 10 00
Squares.—Steel and Iron, new list.....dis 50 %
Saws.—Disston's Cross Cut.....dis 12½ %
Disston's Hand.....dis 12½ %
W. McNiece's H'd, Cross-Cut & Circ'r, new list..dis 15 %
Boynton's Lightning, new list.....dis 30 %
Shovels and Spades.
Rowland's Plain Back, list Sept. 1st.....dis 30 %
“ Back Strap “ “ .....dis 30 %
Oliver Ames & Sons.....new list dis 12½ %
Brady Shovel Co.....dis 12½&5 %
Sad Irons.—Richmond (polished face), per lb. 4 c. net
Richmond (polished face)... by the cask “ 3½c. net
Stone.—Arkansas Oil, No. 1.....₩ lb $1 38
Turkey Oil, No. 1.....“ 1 00
Washita Extra.....“ 30c
“ No. 1.....“ 22c
“ “ 2.....“ 18c
“ “ 3.....“ 5½c
Screws.—Iron.....new list, Jan. 1st, 1874, dis 52½ %
Brass.....dis 52½ %
Spoons.—
Plated.....dis 40&5 %
Britannia.....dis 40&10 %
German Silver.....dis 20 %
“ Light.....new list dis 15&5 %
Lalance & Grosjean Iron.....dis 10 %
Springs.—Gray's Door.....dis 40 %
Torry's Door.....dis 40 %
Stocks and Dies......dis 15 %
Stove Polish.—Gem.....₩ gross, $5 00
Onyx.....“ $5 00
Try Squares.—Winterbottom.....dis 10 @ 15 %
Stanley Rule and Level Co.....dis 45&10 %
Willis Thrall, No. 2.....dis 30&10 %
Disston's No. 2.....dis 40 %
Tacks, &c.—Half Weight Tacks.....dis 72½ %
“ “ “ by the case...dis 72½&7½ %
Clout and Finishing Nails.....7½ %
“ “ “ by the case.....dis 7½ %
Traps.—Genuine Oneida—Newhouse list.....dis 20 %
Imitation “ “ “ .....dis 30 %
Vises.—Solid Box.....₩ lb net 15c
Wrenches.—Coes Genuine.....dis 40 %
Coes Imitation Wrought Bar.....dis 50 %
“ “ Malleable Bar.....dis 60 %
“ “ (Kellogg) Malleable Bar...dis 50 @ 10 %
Tafts Pattern (Wrought Bar).....65 %
“ “ Kellogg's (Nail Bar).....dis 65&10 %
Philadelphia Tool Co.'s Pat. Duplex.....dis 25 %
“ “ “ Improved Baxter.....dis 25 %
“ “ “ Adjustable Fork.....dis 25 %
Wire.—No. 0 to 18.....dis 40 %
No. 19 to 26.....dis 40 %
No. 27 to 36.....dis 45 %
Coppered 0 to 12.....dis 45 @ 47½ %
Tinned Broom Wire.....dis 15 @ 20 %
Galvanized Wire No. 0 to 18.....dis 20 %
Galvanized Wire No. 0 to 18.....dis 40 %

BUFFALO.

Reported by Messrs. Sidney Shepard & Co.

Sept. 12, 1874.

Augers—Snell Mfg. Co.....dis 20 %
Bits, Auger—Snell Mfg. Co.....dis 20 %
Bells, Cow—Yaw's Genuine.....dis 30 %
Bolts—Carriage and Tire.....dis 45&10 %
Braces—Bit, Spofford's Patent.....dis 40&5 %
Brads, Cut.....dis 50&7½ %
Boards—Stove, Brooks' Patent.....dis 30 %
Butts—Brass.....dis 25 %
“ Wrought Narrow.....dis 30 %
“ Broad, Loose Joint.....dis 35 %
“ Table and Back Flaps.....dis 35 %
Wrought Butts, Loose Pin.....dis 35 %
Belting—Rubber.....dis 30 @ 35 %
Leather, new list, oak tanned.....dis 20 %
Brick—Bath (box of 2 doz) Best English.....$1 50
“ Rutherford”.....$1 00
Chalk—White, Carpenter's.....₩ gross, 50c
Red, Carpenter's.....“ 75c
Blue, “ .....“ 90c
Chisels—Firmer Socket.....dis 60&10 %
Framing Socket.....dis 60&10 %
Corner Socket Chisels.....dis 60&10 %
Slick's Carpenters'.....dis 60&10 %
Castings—Malleable.....₩ lb 10c
Clothes Wringers, “Novelty” No. 2.....₩ doz $58 00
Elbows—Corrugated.....

	5	5½	6	7	} dis 10 %
Charcoal	$3 50	4 50	5 25	6 50	
Russia	7 00	9 50	12 00	14 00	

Files—Maischoss Bros.....dis 50 %
Freezers Ice Cream—“Champion.....dis 33⅓ %
Hammers—Henry W. Kip's.....dis 7½ %
Hinges—Window Blind—
“ Clark's.....dis 50&10 %
Shepard's and Standard.....dis 55&10 %
Wrought Strap and T.....dis 50&10 %
Hods, Coal—Plain, Black and Galvanized.....dis 10 %
Funnel, Black and Galvanized.....dis 10 %
Fancy and Helmet.....dis 10 %
Palace Coal Vases.....dis 10 %
Hooks and Staples—Wrought.....dis 10 %
Hooks—Belt.....dis 60&10 %
Hasps and Staples—Wrought.....dis 50&10 %
Sad Irons.....dis 60&10 %
Kettles—Brass.....4c
Enameled.....₩ lb. 50c
Knives, Drawing—Oval No. 1.....dis 50&5 %
Razor Blade.....dis 60&10 %
Lanterns “Peerless,”.....dis 50&10 %

No.	1	5	10
	₩ doz $36 00	$10 50	$13 75 dis 10 %

Tubular.....
“ with Guards.....
Machines—Apple Paring, “Turn Table”.....8 00 ₩ doz
Mills, Coffee—Box and Slide, common.....dis 15 %
Box Union and Eagle.....dis 15 %
“ American.....dis 20 %
Nails—Clout and Finishing.....dis 7½ %
Shoe.....dis 7½ %
Horse, Ausable.....

No.	5	7	8	9	10
	30	25	23	24	22c

“ “ Finished & Pointed.....add 1c ₩ lb
“ “ 1000 lbs.....
“ Clinton.....dis 5 %

No.	6	7	8	9	10
	22	20	19	18	17c

Packing—Rubber.....dis 30 @ 35 %
Pencils, Slate—Soapstone.....4 5 6in.
30 40 50c. ₩ 100
Case lots.....dis 20 %
Paint—White Lead, U. S. Gov't.....₩ lb 9 c
Rivets—Iron, Black and Tinned.....dis 25&7½ %
Rope—Manila, ½ inch and larger.....₩ lb 15½c
Screws—“American Screw Co”—
Flat Head, Iron.....dis 52½ %
Flat Head, Brass.....dis 52½ %
Staples—Blind, Boardman & Pat., ¼ & ⅜.....₩ lb 37c
Spoons, Iron Tinned.....dis 10 %
“ by the case.....dis 20 %
Plated Rogers' A No. 1.....dis 10 %
Britannia.....dis 45&10 %
Squares—Steel and Iron.....new list 50 %
Shoes, Horse—H. Burden & Sons.....₩ keg $6 00
Saws—Henry Disston & Sons.....dis 10 %
Scales—Buffalo Scale Works.....dis 25 %
Fairbanks.....dis 15 %
Traps, Steel—Newhouse.....dis 20 %
Tacks—Half Weight Am. Iron.....dis 72½&7½ %
Vises—Parallel, Buffalo.....dis 10 %
Ware—French, Tinned and Iron.....dis 25 %
Stamped and Japanned.....dis 10 %
Cast Iron Hollow.....dis 33½ %
Tin Plates.—Add for each X.....2 50
10x14, IC, Charcoal...$11 25 | 14x20 IC, terne...$10 25
12x12, “ ... 11 75 | 20x28 C, “ ... 21 50
12½x17, “ ... 10 75 | 20x28 X, “ ... 26 00
14x20, “ ... 12 25
Pig Tin—Straits.....28c @ 29c
Bar Tin.....30c
Solder.....No. 1, 15c; No. 2, 14c
Sheet Zinc—
“ Lasalle”.....570 100 ₩ casks
$10 00 10 50 ₩ 100 lbs
Sheets.....$10 00
Iron Wire—Bright and Annealed.....dis 40 %
Coppered.....dis 35 %
Tinned.....dis 15 %

Tinned Broom,	Nos. 20	21	22	} dis 20 %
	20c	21c	21c	

Copper—Sheathing 14 @ 16 oz.....₩ lb 33c
Planished.....₩ lb
Bottoms.....₩ lb 33c
Bolts.....₩ lb 35c
Braziers' Sheets.....₩ lb 37c
Sheet Iron.—
18 Common.....$4 95
24 Common.....5 25
24 W. D. Wood & Co., Smooth Finish.....5 90

Am. Russia.....	A.	B.
Gen. Russia, No. 1 stained	15c	12c
“ “ clean		18c
Galvanized		19c
		dis 15 %

CINCINNATI.

Reported by Sellew & Co., Importers and Jobbers Metals, No. 214, 216 and 218 Main street.

Tin Plate.—I. C. 10x14 Charcoal.....$ @ 13 00
I. X. 10x14 Charcoal.....@ 17 00
I. C. Terne 14x20.....11 00 @ 12 00
I. C. Terne 20x28.....24 00 @ 25 00
I. C. Continuous.....26 00
Block Tin.....₩ lb 30c @ 31c
Solder.—
S. & Co.....₩ lb 26c
Lead.—Pig.....₩ lb 7c.
Copper.—
Ingot.....₩ lb @ 36c
Planished.....“ @ 44c
Sheathing.....“ @ 33c
Copper Drops @ 33c
Zinc. Casx, 500 to 1000 lbs.....₩ lb
Case, 100 lbs.....“
Slab.....“
Brass.—
Roll, No. 6 to 20. ₩ lb 38c
“ 20 to 30. “ 42c
Rabbit Metal.—
Sellew & Co.....₩ lb 35c
Antimony.....₩ lb
Bismuth.....₩ lb $4 00
Nickel.....₩ lb $4 50
Sheets, 6 to 9 lb...₩ lb 41c
“ 10 to 12 o...“ 38c
Braziers 13 lb.....“ 35c
Copper Bottoms.....“ —
“ 20c
“ 11 c
“ 7½c
Roll, No. 38 to 40...₩ lb 50c
Wire, No. 0 to 20...₩ lb 40c
“ 20 to 25...“ 45c
Aliens'.....₩ lb 25c
Market.....“ 13c

DETROIT.

(Reported by Messrs. Jewett & Root.)

Tin Plate.—Best Charcoal
IC, 10x14.....$11 50
IX, 10x14.....14 25
XX, 10x14.....17 00
IC, 12x12.....12 00
IX, 12x12.....14 75
IC, 14x20.....12 50
IX, 14x20.....15 25
XX, 14x20.....18 00
XXX, 14x20.....20 75
XXXX, 14x20.....23 50
DC, 100 Plate.....11 00
DX “ 13 75
DXX, “ 16 50
DXXX “ 19 25
DXXXX 100 Plate..22 00
IX, 14x14.....23 50
IC, 10x14 W.....11 00
IX, 10x14 W.....13 75
Roofing Tin.—Best Char.
IC, Terne, 14x20...$10 25
IX, “ 14x20..... 13 00
IC, Terne, 20x28.....
IX, “ 20x28.....
Coke Tin.—
IC, 10x14 Coke.....$9 50
IX, 10x14, Coke.....12 25
IC, 14x20, “ 10 50
Sheet Zinc.—
Any width.....9½c
Copper.—
Sheathing.....33c
Copper Bottoms.....34c
Planished Copper.—
Sheathing, 14x48.....41c
Boiler Size, No. 7.....43c
“ “ No. 8.....43c
“ “ No. 9.....43c
Tinning ₩ sheet, 14x48 10c
“ “ No. 7 10c
“ “ “ 8 14c
“ “ “ 9 16c
Pig Tin.—
Large Pigs.....29c
Small Pigs.....29c
Bars.....31c
Solder.—No. 1.....17c
No. 2.....16c
Bright Wire....dis 67½ %
Sheet Iron.—
No. 18 Am. Com.....4 80
No. 24 Am. Com.....5 00
Pat. Am. Russia “A,”
Nos. 24, 25 & 26.....14½c
Russia, Nos. 9, 10, 11 & 12.19c
Pat. Planished Russia.. c
Russia No. 9, 10, 11&12... c
W. D. WOOD'S & CO.'S SHEET IRON.—
Nos. 15 to 20 Smooth $6 10
“ 21 to 24.....6 30
“ 25 & 26.....6 50
“ 21 to 24 Char'l..7 80
“ 25 & 26 “ ..8 00

A. PARDEE, Hazelton, Pa. J. G. FELL, Phila.

Steel.

THREE CLASS PRIZE MEDALS, CLASSES 1, 21, 22, Great Exhibition of Industry, LONDON, 1851.

MEDAL OF HONOUR, SOCIETY OF ARTS & INDUSTRY, LONDON, 1856.

1st CLASS PRIZE MEDAL, CLASS 1st UNIVERSAL EXHIBITION OF INDUSTRY PARIS, 1855.

COCKER BROTHERS,

SUCCESSORS TO

SAML. COCKER & SON,

(Established 1752.)

SHEFFIELD, ENGLAND

MANUFACTURERS OF

CAST, [illegible], SHEET, AND BLISTER STEEL, OF EVERY DESCRIPTION.

BEST CAST STEEL WIRE, ADAPTED SPECIALLY FOR MECHANICAL PURPOSES; Also for ROPES, NEEDLES, FISH HOOKS, PINS, CRINOLINE, &c.

BEST CAST STEEL FILES, SAWS, EDGE TOOLS, HACKLES, GILLS, CARD CLOTHING, CARD TEETH, HACKLE AND GILL PINS, FISH HOOKS, NEEDLES. &c.

ALSO

GENERAL MERCHANTS.

Agent, JONATHAN HATTERSLEY, Cincinnati, O.

WM. JESSOP & SONS,

MANUFACTURERS OF

STEEL,

AND IMPORTERS OF IRON

SHEFFIELD, ENGLAND.

PRINCIPAL DEPOTS:

NEW YORK, Nos. 91 and 93 John Street.....BOSTON, No. 141 Federal.

ST. LOUIS, No. 714 North Second Street.

AGENCIES:

PHILADELPHIA, Jas. C. Hand & Co.....PROVIDENCE, Nightingale & Kilton.

CHICAGO, Crerar, Adams & Co.....NEW ORLEANS, Folger & Co.

CINCINNATI, Augustus Wessel.....SAN FRANCISCO, Huntington, Hopkins & Co.

F. W. MOSS,

Successor to **JOSHUA MOSS & GAMBLE BROS.**

FRANKLIN WORKS, WADSLEY BRIDGE WORKS, WALKLEY WORKS, } SHEFFIELD, ENGLAND.

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MOSS & GAMBLE **SUPERIOR C. S. "FULL WEIGHT" FILES,**

Cast Steel Hammers and Sledges. Also, "M. & G." Anvils and Vises.

WARRANTED CAST STEEL, especially adapted for DIES and TURNING TOOLS, DRILLS, COLD CHISELS, PUNCHES and all kinds of MACHINISTS' TOOLS.

Celebrated Improved Mild Centre Cast Steel, for Taps, Reamers, and Milling Tools, warranted not to crack in hardening Taps of any size.

Swede Spring Steel, especially adapted to Locomotive and Railway Car Springs.

English Spring and Plow Plate Steel. Also, manufacturer of

Steel Cast Steel, Shear, German, Round Machinery, Hammer, Fork and Shovel Steel

And GENERAL MERCHANT.

A. M. F. WATSON, General Agent.

WILSON HAWKSWORTH, ELLISON & CO.,

MANUFACTURERS OF

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AND GENERAL MERCHANTS,

CARLISLE WORKS, SHEFFIELD, ENGLAND.

AGENCIES:

New York, 72 John Street.

Philadelphia, 505 Commerce Street.

Boston, 21 Oliver Street.

New Orleans, La., 111 Gravier St.

BARROW HÆMATITE STEEL COMPANY,

LIMITED.

BARROW IN FURNESS, LANCASHIRE, ENGLAND.

MANUFACTURERS OF

Steel Rails, Tyres, Wheels,

Axles, Shafting, Boiler & Ship Plates, Bessemer Pig Iron, etc., etc.

CHAS. CONGREVE & SON,

Sole Agents for the United States,

104 & 106 John Street, opposite Cliff Street, NEW YORK.

J. & RILEY CARR,

MANUFACTURERS OF SUPERIOR

STEEL

For Tools, Cutlery, Saws, Files, Augers, Gimblets, &c.; Sheet Cast Steel for SPRINGS AND STAMPING COLD;

ALSO THE CELEBRATED

DOG BRAND FILES,

Unsurpassed, if equaled in quality.

Bailey Lane Works, Sheffield, England.

Warehouse, 82 John St., New York.

Established 1810

HENRY MOORE, Attorney.

Steel.

SANDERSON BROTHERS & COMPANY,

(LIMITED)

MANUFACTURERS OF THE

CELEBRATED CAST STEEL,

Warranted Most Superior for Tools and Granite Rock Drills.

DARNALL WORKS, ATTERCLIFFE FORGE, WEST STREET WORKS, } SHEFFIELD, ENGLAND.

IMPORTERS OF FILES,

AND

AGENTS FOR ARMITAGE'S GENUINE MOUSEHOLE ANVILS.

NEW YORK, Edward Frith, 16 Cliff. | NEW ORLEANS, Rich'd Rhodes, 71 Camp.

BOSTON, H. L. Richards, 18 Batterymarch. | BALTIMORE, Md., Wm. H. Cole.

PHILADELPHIA, Wm. H. Sowers. | MONTREAL, Saint Paul St.

CLEVELAND, O., Cleveland, Brown & Co. | NEW HAVEN, Ct., Atwater, Wheeler & Co.

FRANCIS HOBSON & SON,

97 John Street, NEW YORK,

Sole Manufact'rs of **"CHOICE"** Extra Cast Steel.

Manufacturers of all Descriptions of Steel.

Manufacturers of Every Kind of Steel Wire.

Don Works, Sheffield, England.

JOHN HOGAN, Agent.

S. & C. WARDLOW,

MANUFACTURERS OF THE CELEBRATED

Cast and Double Shear STEEL,

In Bars, Sheets and Coils, for fine Pen and Pocket Cutlery, Table, Carving, Butcher and Shoe Knives, Turning Tools, Dies, Files, Clock or other Springs, Saws and Tools of every variety.

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Office of S. & C. WARDLOW, 13 Gold Street, New York.

In calling the attention of consumers of Steel in any of the parishes above enumerated, we would respectfully assure them of our ability to supply an article, that cannot be excelled in quality, temper, and adaptation in all respects to the various purposes for which it may be required. Half a century of practical experience in all departments of Steel manufacture, a long established reputation in England, and the Continent of Europe, and in the Eastern States principally of this Country, encourage us to solicit a universal trial of our Steel for the above or other purposes for which a first class material in quality, temper, and durability is needed.

G. SANDERSON & CO.,

Manufacturers of all descriptions of

STEEL.

Bailey Street and Broad Lane Steel Works, } SHEFFIELD, ENGLAND.

Particular attention is paid to quality and temper for

Files, Saws, Table and Pocket Cutlery, Augers, Shovels, &c.

ALSO STEEL of superior quality for **Turning Tools, Taps, Dies, Drills, &c.**

Hot and Cold Rolled Sheets for Clock Springs, Corset Clasps, Pens, &c.

☞ *Makers of the Celebrated ROCK BORING DRILL STEEL.*

Warehouse, 57 John Street, New York.

JOHN A. GRISWOLD & CO.,

Troy, N. Y.,

Office in New York City, 56 BROADWAY.

MANUFACTURERS OF

Bessemer Railway Steel,

MERCHANT BARS, TIRE AND SHAFTING,

Railroad Iron, Pig Iron, Merchant and Ship Iron,

AGENCIES IN BOSTON AND PHILADELPHIA.

D. G. GAUTIER & CO.,

MANUFACTURERS OF

Hammered and Rolled STEEL of every description

JERSEY CITY, NEW JERSEY.

DUDLEY G. GAUTIER. JOSIAH H. GAUTIER.

CHROME STEEL COMPANY,

MANUFACTURERS OF

CHROME CAST STEEL,

WARRANTED SUPERIOR TO ANY STEEL IN THE MARKET—EITHER ENGLISH OR AMERICAN—FOR EVERY PURPOSE.

Principal Office, **110 Liberty St., N. Y., WILLIAM TOOTHE,** General Agent.

Potter & Hoffman, Philadelphia, Pa. Harris, Rice & Co., St. Louis, Mo. **AGENCIES,** Kimbark Bros. & Co., Chicago, Ills. Wood & Leggat, Hamilton, C. W.

Works, Corner of Keep St. & Kent Ave., Brooklyn, E. D.

Steel.

Sheffield Steel Works,

(Established in 1848.)

SINGER, NIMICK & CO.

Pittsburgh, Pa.,

Manufacturers of **Extra Quality Tool**

CAST STEEL,

Patent Rolled

SAW PLATES,

All descriptions of **Cast and German**

Spring and Plow Steel

Elliptic and Side Springs, Seat Springs,

AXLES, STEEL TIRE,

Plow Wings, Shares, Cultivators, Reaper Bars, Mow Bars, &c., &c.

Warehouse, 83 Water and 100 First Streets.

ISAAC JENKS & SONS,

Minerva & Beaver Iron & Steel Works

Wolverhampton, England,

MANUFACTURERS OF

"Jenks" Spring Steel, Cast and Swedes Spring Steel,

TIRE, TOE CORK, SLEIGH SHOE, BLISTER & PLOW STEEL.

Also, Plow and other Iron.

VAN WART & McCOY, Agents,

43 Chambers St., New York.

A full assortment of "Jenks" Spring Steel in stock.

MILLER, BARR & PARKIN,

Crescent Steel Works,

PITTSBURGH, PA.

Manufacturers of all descrip[illegible] of

STEEL

EQUAL TO ANY IN THE MARKET.

Office.....339 Liberty St.,

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Gunpowder.

GUNPOWDER

DUPONT'S

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POWDER.

DUPONT'S GUNPOWDER MILLS

ESTABLISHED IN 1801,

Have maintained their great reputation for years. Manufacture the

Celebrated Eagle Ducking, Eagle Rifle and Diamond Grain Powder.

Also, SPORTING, MINING, SHIPPING, AND [illegible]ING POWDER

of all kinds and descriptions.

For sale in all parts of the country.

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GUN-POWDER

LAFLIN & RAND POWDER CO.

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invite the attention of the the Hardware Trade to their facilities for delivering

BLASTING, MINING and RIFLE

POWDER

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Newburg, Saugerties, Kingston, and Catskill, N. Y.; Scranton, Carbondale and Pottsville, Pa.; Baltimore, Md., and Platteville, Wis.

The superiority is well known of our brands of Rifle Powder

Orange Rifle, Orange Ducking Lightning, Audubon.

SAFETY-FUSE at wholesale.

CHICAGO.

(Reported by Markley, Alling & Co.)

Agricultural Implements.—
Scythes—Dunn Edge Tool Co.....dis 30 %
Hay and Manure Forks—Otsego extra C. S.....dis 30 %
Hoes and Garden Rakes—Jackson and Otsego...dis 30 %
Scythe Stones.....dis 25 %
Scythe and Bush Snathes.....dis 25 %
Harvest Rakes and Barley Forks.....dis 25 %
Revolving Horse Rakes.....dis 25 %
Handles—Fork and Shovel.....dis 25 %
Cradles—Nithington, Cooley & Co.....dis 45 %
—Genuine Morgan.....₱ doz net $34 00

Augers and Bits.—
Ives' extra C. S....dis 30 % | Snell's.....dis 10 %
Jennings'.....dis 5 % | " Car Bits.....dis 10 %
Cook's.....dis 30 %

Axes.—Amoskeag Yankee.....₱ doz $12 00
Amoskeag Crescent..... " 13 00
Hunt's Bronzed..... " 12 00
Jefford's Silver Steel..... " 12 50
M. A. & Co. Clipper..... " 12 50
Mann's Red Warrior, Bevelled..... " 12 50
" Double Bitt..... " 25 00
Handled Axes..... " 15 00
" " Boys..... " 12 00
Kennebeck..... " 11 00

Bolts.—Carriage and Tire.....dis 20 @ 10&5 %
Cast Barrel and Shutter.....dis 20&10 %
Wrought Iron Barrel.....add 10 %
" Square.....net list

Butts.—Cast Fast Joint, Narrow.....dis 30 %
Cast Fast Joint, Broad.....dis 20 %
" Loose Join.....dis 50&5 %
" " Pin, Reversible.....dis 40 %
" " Japanned.....dis 35 %
" " Silver Tipped.....dis 25 %
Wrought Narrow, Fast Joint.....dis 30 %
" Broad " " .....dis 30 %
" " Loose " .....dis 37 %
" Loose Pin.....dis 30 %
" Table.....dis 30 %
" Brass.....dis 10 %
Garretson's Blind Butts, Wood.....doz sets $1 75
" " " Brick.....doz sets 2 75
Parker's " Wood.....doz sets 1 85
" " Brick.....doz sets 2 75

Casters.—Iron Plate.....dis 25 %
Brass Wheel Plate.....dis 25 %
Porcelain Wheel Plate.....dis 25 %
" " Bed.....dis 25 %
Iron Wheel Bed.....dis 25 %

Chisels.—Butcher's Tanged Firmer.....dis 30 %
" " Long Paring.....dis 30 %
Witherby Socket Framing.....dis 50&20 %
" " Firmer.....dis 50&20 %
" " Corner.....dis 50&20 %
" " Slicks.....dis 50&20 %

Coffee Mills.

Box 4 Iron	$ 3 75	Box 85 Cast Steel	$12 00
" 103 "	5 25	Side 50	4 75
" 102 "	6 25	" 60	5 75
" 107 Britannia	7 50	" 70	7 25
" 106 "	8 50	" 90	18 00
" 25 Union	10 50	" 15 Union	7 00
" 35 "	12 00	" 20 "	8 00
" 75 Cast Steel	10 50		

Cutlery.—American Table.....dis 20 %
" Pocket.....dis 25 %

Door Springs.—Torry.....₱ doz $5 00
Rubber..... " 4 00
Boon's..... " 5 00

Drawing Knives.—Witherby Tool Co....dis 50&20 %
Ohio Tool Co.....net list

Files.—Butcher's.....$7 00 £
Nicholson's.....$5 00 @ $5 50 £

Hammers.—
Maydole's.....net list | Yerks & Plumb.....net list
| | Cheney.....net list

Handles.

Extra Axe	₱ doz. $3 00	Coal Pick, No. 1	₱ doz $2 00
No. 1 Axe	" 2 25	Sledge, No. 1	" 2 00
No. 2 Axe	" 2 00	Hatchet	" 65
R.R. Pick, No. 1	" 2 00	Hammer, A. E.	" 65

Hatchets.—
Amoskeag Shingling.....$7 25 $8 00 $8 75
" Claw..... 7 75 8 50 9 22
" Lath..... 7 50 8 25
" Solid Steel..... 12 00

Hinges.—Strap and T.....dis 20&10%
Screw Hook and Strap, 8 to 12 in.....8c. ₱ lb
" " 14 to 24 in.....6½c. ₱ lb
Hook and Eye Hinges.....net 13c. @ 16c. ₱ lb
Gate, No. 32, State.....₱ doz $8 50
" No. 3, In and Out..... " 3 50
" Blinn's Pat..... " 7 50

Hog Ringers.—Hill's Patent.....₱ doz $6 00
Hill's Patent Rings.....₱ 100, 25c
" Tongs.....₱ doz $6 00

Horse Nails.—Northwestern, 8d.....24c
Ausable, 8d.....24c
Globe, 8d.....26c

Kettles.—Brass.....54c

Locks and Knobs.—
Norwalk Lock Co. dis 45 % | Enameled.....dis 30&10 %
Branford " .dis 45 % | EagleLock Co.....dis 15 %
| | All. Pad Locks.....dis 35 %
| | Conti'al Lock Co....dis 10 %
| | Woodruff Patent....net list
| | Stowe's Sausage Stuffers.....net list
| | Enterprise Patent....dis 5 %

Meat Cutters.—
Haven's Patent ...net list
Hale's " ...dis 10 %

Molasses Gates.—
Stebbin's Patent ..dis 50 %

Nails.—10d to 60d.....per keg $4 00

Oil Stones.—Washita No. 1.....net 30c ₱ lb
Washita Slips.....net 60c "
Hindostan No. 1.....net 9c "
" Axe.....net 10c "
" Slips.....net 15c "

Picks and Mattocks.—Picks, Railroad, Axe Finish.....₱ doz $12 00
Picks, Coal, Axe Finish..... " 10 00
Mattocks, L. C., Axe Finish..... " 15 00
" S. C., " " " 14 50
Grub Hoes, Axe Finish, No. 2..... " 7 00

Planes.—Ohio Tool Co., Bench.....dis 30 %
Sciota.....dis 35 %
A. Howland & Co., Bench.....dis 30 %
" Fancy.....dis
Bailey Patent Iron.....dis 15 %
Plane Irons, Butcher's.....dis 30 %

Rivets.—Iron.....dis 10 @ 15 % | Copper, No. 7, net, ₱ lb, 20c
Tinned.....dis 10 @ 15 %

Rules.—Stanley Rule and Level Co.....dis 50&10 %
Hubbard & Curtiss Mfg. Co.....dis 50&10 %

Sad Irons.—Best A No. 1..... ₱ lb., 5c
" Copper Face Star..... ₱ lb., 4½c

Sandpaper.
Baeder & Adamson's No. 0 to 1½...per ream, net $4 50
" " No. 2 to 3..... " net 5 00
Wiggins & Stevens, No. 0 to 1½.....₱ ream, net, $4 50
" " No. 2 to 3..... " 5 00

Sash Locks.—Champion.....₱ gross, net, $12 00
Hopkins & Dickinson.....dis 10 %
Judd's Patent.....dis 10 %
Corbin's Patent.....dis 10 %
Clark's Patent.....dis 20 %

Saws.—H. Disston & Sons.....dis 10 %
Champion X Cut.....₱ foot, net, 60c
M. A. & Co. X Cut..... " 50c
Lightning Cut..... " 66c

Screws.—American Screw Co.—Iron...new list dis 50 %
American Screw Co.—Brass.....dis 50 %

Shovels and Spades.
Ames' Black Shovels.....₱ doz $14 50
" Polished " ..... " 15 50
" Patent " ..... " 18 00
Alling " " ..... " 16 00
" " " Molders' ..... " 18 00
Crane's Black " ..... " 11 50
" Polished " ..... " 12 00
Smith's " " B. S. L. H. Rd. Pt.... " 13 50
" " " B. S. D. H. Rd. Pt.... " 14 00
Ames' Black Spades..... " 16 00
" Polished " ..... " 17 00
" Patent " ..... " 17 50
Alling " " ..... " 16 00
Crane's Black " ..... " 12 50
" Polish'd " ..... " 13 50

Scoops.—Alling Steel Polished, No. 2.....₱ doz, $18 50
Alling Steeled Polished, No. 3..... " 14 00
" " No. 4..... " 14 50
" " No. 5..... " 15 50
" " No. 6..... " 16 50
" " No. 7..... " 17 50
" " No. 9..... " 18 50
" " No. 10..... " 21 50
Crane's Polished, No. 5..... " 13 50
" No. 6..... " 14 50
" No. 7..... " 15 50
" No. 8..... " 16 50
Crane's Black Coal, No. 4..... " 17 50
" No. 5..... " 18 00
Preston, Black Scoops No. 1..... " 12 00
" No. 2..... " 12 50
" No. 3..... " 13 00
" Half Pol. Scoops No. 1..... " 12 50
" " No. 2..... " 13 50
" " No. 3..... " 14 50
Lippincott, Half Pol. No. 2..... " 15 00
" No. 3..... " 16 00

Screw Drivers.—Taft's.....dis 60 %
Coe's Imitation.....dis 50 %
Coe's Genuine.....dis 35 %

Wringers.—Novelty Clothes Wringer.....₱ doz $65 00
Universal Clothes Wringer..... " 69 00

Chicago Metal Market.

(Reported by Frank Sturges & Co., 72, 74 & 76 Lake St.)

Tin Plate.—

10x14, IC, Ch'l. Good	$	14x20, IXX, " "	$15 50
10x14, IC, " Best.	11 50	14x20, IXXX, " "	18 50
10x14 IX, " "	14 50	14x20, IXXX, " "	21 50
12x12, IC, " "	12 00	DC, 100 Plate, " "	11 50
12x12, IX, " "	14 50	DX, " "	14 50
14x20, IC, " "	15 00	DXX, " "	17 50
14x20, IC, " "	17 50	DXXX, " "	20 50

Roofing IC, Charcoal, Best.....11 00
Roofing IX, Charcoal " 14 00
20x28, IC, Charcoal Roofing, Com.....21 50
20x28, IC, " Good.....24 00
20x28, IC, " Best.....22 50
20x28, IX, " " .....26 50 @ 27 00
10x14, IC, Coke Plates.....10 00
14x20, IC, " 10 50
10x20, IC, " .....16 00 @ 17 00

Block Tin.—
Large Pigs.....22c | Bars.....30c
Small.....24c | Straits, 2c. higher.

Zinc.—Sheet, 500 to 1000 lb. Casks.....9¾c
Loose Sheets.....10c
Slab Zinc or Spelter.....6½ to 7¼c

Copper.—Bottoms.....33c
Sheathing.....32c
Planished.....37c
" Boiler lengths.....33¢
Ingot.....24c to 26c
Bolt.....30c

Braziers' Sheets.—
30x60, 6 to 10 lbs..₱ lb 41c | 30x60, 15 to 100 lbs..₱ lb 35c
30x60, 10 & 12 lbs. " 38c

Solder.—F. S. & Co.'s make.
Best Fine.....22c | Roofing.....18c
No. 1.....20c | Braziers' or Spelt. Sold..35c

Antimony.....18c

Babbit Metal—F. S. & Co.'s.....16c
No. 2.....14c

Sheet Iron.—

	Common.	Smooth. Com.	Smooth Charcoal.	Smooth Juniata.
No. 24	4¾c	5¾c	7¼c	9¼c
25 & 26	5 c	6 c	7½c	9½c
27	5¼c	6¼c	7¾c	9¾c

Galvanized Iron.....dis 20 %

No. 15 to 20	12c	No. 24	15c
21 to 24	13c	28	16c
25 & 26	14c		

Russia Iron.—
Perfect.....20c | No. 1 Stamped.....19c
| In Sheets, 1c. higher.

American Russia.—
A.....15c | B.....13c
| In sheets, 1c higher.

Lead.—
Pig.....7¼c | Lead Pipe, in full coils .8¼c
Bar.....8¾c | Lead Pipe, when cut, .8¾c
| Sheet Lead.....8¾c

Wire—Bright.....dis 30 %
Coppered.....dis 25 %

BOSTON.

(Reported by Macomber, Bigelow & Dowse, 156 to 164 Oliver St.)

Apple Parers.—Reading.....per doz $8 00

Augers.—Watrous Ship.....dis 10 %
L'Hommedieu Ship.....dis 15 %

Axes.—Forester's Favorite, Bronzed.....$12 50
Blue Jackets, Blue..... 12 00
Excelsior, Black..... 11 50
Chopper's Pride, Bronzed..... 11 00
Red Cross, Red..... 10 50
Red Cross, Handled..... 12 50
Boy's Handled Blue Jackets..... 12 00

Axe Handles.—Wadleigh's Oak—
A (Extra) $2 50. B (No. 1) $2 00. C (No. 2) $1 50 ₱ doz

Blind Hinges.—Washburn's.....per hundred set $9 50

Blind Fasts.—Washburn's.....per hundred set $5 75

Bolts.—Carriage, Phila., " Girard Works....dis 50&10 %

Borax.—Best Refined.....₱ lb 16c

Borers.—Angle, Backus'.....dis 30 %

Boring Machines.—Angle.....each $4 75
Common, Snell's quality.....each 3 75

Braces.—Barber's.....dis 40&5 %
Backus'.....dis 50 %
Spofford's.....dis 40 %

Brass Faucets.—L. F. & C.....dis 25 %

Butts.—Union Drilled Loose Joint.....dis 60&10 %
" " Wire Fast Joint.....dis 55 %
" " Acorn Loose Joint...dis 60&10 %
Brass Butts.....dis 30 %
Wrought Table Butts and Back Flaps.....dis 30 %
Wrought Narrow Butts.....dis 30 %

Cartridges.—" U. S. Cartridge Co."....dis 50 %

Chisels.—"Buck Bros.' Shank Goods....add 20 @ 22½ %
Socke'.....add 22½ @ 25 %

Compasses and Dividers.—Bemis'.....dis 35 %
P. S. & W.....dis 25 %

Cordage.—Manila (usual trade dis.).....₱ lb., 16c
American Tarred Hemp Lath Yarn.....₱ lb., 10c

Corn Hooks.....per doz $2 75

Crow Bars.—Iron. Steel Points.....₱ lb., 5¼c
" Sweet" Steel Bars.....₱ lb 11c
Brown's Steel Bars.....₱ lb 10c
K. P. & Co. Extra Drill Steel.....₱ lb 15c

Dividers.—Cook's Nickel Plated.....dis 15 %

Door Springs.—Stimson's Patent.—
No. 1, Light inside doors, $12 00.....dis 25 %
No. 8, outside " $18 00.....dis 25 %
Torrey's.....$4 00

Emery.—Alden.....₱ lb 7c
Wellington Mills.....₱ lb 10c

Files.—Eart Smith & Co.'s English.....$5 to £ gold
American.....$5 to £ currency, less 12½ %
Nicholson.....$5 to £ currency, less 1.½ %
" " Regular Taper.....dis 12½&5 %
Stubb's Tapers, genuine, 3 in., $1 50; 3½, $1 62; 4, $1 88; 4½, $2 13; 5, $2 50.

Funnel Irons.—$2 50 2 50 2 50 3 25 per doz
5, 5½, 6, 7 inch.
Deep Flange.—$3 50 3 75 4 00
5, 5½, 6 inch.

Hammers.—Maydole.....dis 5 %
M., B. & D., solid cast steel, adze eye, No. 1, $10; 1½, $9 50; " " " " " bell face, No. 1, $11; 1½, $9 75.

Hangers & Rollers.—Novelty.....dis 30 %
Anti-Friction.....$1 75 per pair—dis 30 %

Hatchets.—Underhill Edge Tool Co.....dis 10 %
C. F. Dowse, warranted Cast Steel—
Shingling.....0, $4 75; 1, $5 25; 2, $5 75
Claw.....1, 5 75; 2, 6 25
Lathing.....1, 4 50
Axe Pattern.....1, $7 00; 2, 7 50
Broad.....0, $5 75; 1, $6 50; 2, $7 50; 3, $9 25; 4, $10 75; 5, $12 75; 6, $14 75.

Hinges.—Strap and T, Stanley Works.....dis 20&10 %
Plate, Loose and Fast Joint.....₱ lb 7½c
Wrought Screw Hook.....₱ lb 8c

Hoes.—Ely Balch & Co. M., B. & D.'s list, 1874...dis 25 %
Remington, M., B. & D.'s list, 1874.....dis 30 %

Lead.—Sheet and Pipe.....7¾c—less 10 %

Locks.—P. & F. Corbin.....new list dis 45&5 %
Nashua.....dis 45&5 %

Manure Forks.—
Myers & Ervien, M., B. & D.'s list, 1874.....dis 25 %
Peck, Clark & Co., " " .....dis 25 %
Shumway & Co., " " .....dis 30 %

Mattocks.—K. P. & Co., axe finish, long cutter..$13 75
Snort cutter.....13 50

Metal.—Babbitt, No. 1, 35c; 2, 25c; 3, 16c; 4, 15c ₱ lb

Nails.—10c. and larger.....$4 00

Padlocks.—Wilcox.....dis 50&2 %
All Brass, 2¼ inch, 2 keys, job lot.....$9 00

Picks.—K. P. & Co., Polished Points—
5 to 6.....per doz $9 00; 6 to 7, $9 50

Pins.—Universal Hat and Coat all wood—
2 in.....₱ gross $2 50; 3 in., 3 5; 4 in., 4 50—dis 25 %

Potato Digger.—
"Partridge," 6 square tine.....₱ doz $12 00
Shumway & Co., 6 round tine..... ₱ doz 9 00

Pulleys.—Clark & Co.'s Axle, 2 in.....per doz 42c

Plated Ware.—Rogers Bros.....new list dis 40&10 %

Plumb & Levels.—"Davis" Pat. Adjustable—
No. 1, Iron and Wood Center Levels.....dis 50 %
No. 2, First Quality Levels.....dis 60&10 %
No. 3, Iron Pocket " .....dis 35 %
No. 4, Level and Thumb Glasses.....dis 60&10 %
No. 5, Iron Pocket Levels, per square and straight e'g'.....dis 50&10 %
No. 6, Improved Iron Bench Planes.....dis 50&10 %

Pocket Knives.—Conn. Cutlery Co.....new net list

Rakes.—Cast Steel, garden.....dis 30 %
Malleable.....dis 25 %

Rail Barn Door.—For Novelty and Anti-Friction Hangers.....per foot 7c., dis 30 %

Rivets.—Black.....dis 25 %
Carriage, oval head, Nos. 3, 4, 5, 6, 7, 8,
13 13 14 14 15 16c ₱ lb net

Sad Irons.—Bless & Drake.....₱ lb 4

Sand Paper—0 to 2, $4 25; 2 to 3, $4 75.....dis 10 %

Saws.—Disston's.....dis 12½ %
Lightning X cut, Boynton's.....per foot 6½c
" Saw Blades, 32 inch.....per doz $7 00
" Framed Saws.....per doz 8 50
Common " .....per doz 6 00
Disston " " .....per doz 9 00
One man X cut.—Lightning.....$2 75 each
Disston's $3 50 each.....dis 12½ %
Wheeler, Madden & Clemson.....dis 15 %
" " " Mill.....dis 25 %
" " " Circular.....dis 25 %

Screws.—American Screw Co.....revised list dis 52½ %

Scythe Stones.—
"Willoughby Lake," first quality.....₱ gross $6 50
" " second quality..... " 3 00

Shovels.—O. Ames.....new list dis 12½ %
M. B. & D.....new list dis 12½ %

Spading Forks.—M. & F.....dis 25 %

Stone Pickers.—" Partridge," original.....₱ doz $15 00

Tools.—Aiken's Pattern, 20 in set; Parr's, $8 00 per doz

Traps.—Oneida.....dis 20&5 %
Blake's.....dis 50 %

Vises.—K. P. & Co.'s Solid Box, Blacksmith....₱ lb 13c
Parker's Parallel.....dis 10 %
Backus.....dis 25 %
"Howards." Parallel.....dis 20 %

Wardrobe Hooks.—Wire to drive.....₱ gross $1 00

Weights.—Window Weights.....₱ lb 2¾c

Wire Netting.—Clinton Wire Cloth Co., Green, Drab or Black.....₱ ft 6c

Wrenches.—Genuine Wrenches, A. G. Coes..dis 40&5 %

Wringers.—
Novelty and Universal } Tub No. 2 } ..... market unsettled
Eureka..... per doz $60 00
Novelty Bench, No. 4.....market unsettled

Boston Metal Market.

(Corrected by Fuller, Dana & Fitz.)

Tin Plates.—₱ box
I. C. Char. 10x14 @ $11 00
I. C. Coke 10x14..... 9 50
Char. Roof. IC, 14x20. 11 25
Coke " IC, 14x20, 10 25

Pig Tin.—₱ lb
Banca.....30c
Straits.....29c
English.....34c

Zinc.—Sheet.....₱ lb 9½c

Iron.—Sheet Iron, Russia.....9c
Sheet Iron, English.....5 c
" " American Refined.....5¾c
" " Galvanized.....10c
Plate Iron.....4
Swedish and Norway Bar Iron, gold.....₱ ton, $122 50
" " Shapes, gold.....130 00
Norway Nail Rods, first quality, gold.....145 00
" " second " " 135 00
Best Refined Bar Iron.....67 50
The "Burden Best" Iron.....105 4
American Pig Iron, Foundry, No. 1, x.....35 00
" " " No. 2, x.....33 00
" " Gray Forge.....30 00
Scotch Pig Iron.....₱ ton 37 00 @ 40 00
Wrought Scrap Iron.....

Steel.—₱ lb
Eng. Tool.....18c
American Tool " Mach.....15c
Spring.....10½c
Tire.....6½c
Sleigh Shoe.....
Toe Calk.....7¾c

Copper.—₱ lb
Sheathing.....33c
Bolt.....34c
Ingot.....30½c

Lead.—₱ lb
Pig.....6¾c
Sheet and Pipe.....7¾c

Spelter.....₱ lb 8c

Antimony.....₱ lb 14c

ST. LOUIS.

Corrected weekly by Semple, Birge & Co

Anvils.—Armitage.....₱ lb, gold 12c
Peter Wright's..... " 14c
Wilkinson's..... " 12½c

Apple Parers.—Conqueror.....₱ doz, $9 00
Lightning..... 9 00
Turn Table..... 9 00

Axes.—Hunt's.....₱ doz $13 00 @ 18 50
Lippincott's..... " 12 00 @ 13 00
Lippincott's Pioneer..... " 13 00 @ 13 50
Simmons'..... " 12 00 @ 13 00

Axles.—Kritch & Crane Mfg. Co.'s—
Patent Taper Axles.....new list net
Swelled Taper Axles.....new list net
Concord Axles.....new list net
Red Jacket Axles.....new list net
Common Axles, 1½ inch and upward.....₱ lb 8½c
" " less than 1½ inch..... " 8½c

Bellows.—"Best St. Louis make" 60c ₱ n. dis 20 %

Bells.—Troy, Church.....₱ lb, 45c
Light Brass Head.....dis 50 %
Moore's, Cow.....dis 20 %

Bolts.—Arms, Bell & Co.'s Machine.....dis 20 %
Arms, Bell & Co.'s Carriage and Tire.....dis 75 %

Cast Butt Hinges.—Western Butt Co.'s—
Narrow Fast Joint.....dis 35 %
Broad Fast Joint.....dis 50 %
" Loose " .....dis 60 %
Reversible.....dis 50&10 %
" Japanned and Silver Tipped.....dis 50 %
Loose Joint "Acorn" " " .....dis 55 %
Lull & Porter's Blind.....dis 50 %

Wrought Butts.—Narrow.....dis 25 %
Reversible.....dis 30 %
Broad.....dis 30 %

Chain.—Eng. Coil..3-16 ¼ 5-16 ⅜ 7-16 ½ in.
15 11 10 9½ 9 8c gold
Trace.....6½-10-2 c "
7-10-2 70c "
German Coil and Halter.....revised list add 10 %

Chisels.—Socket, Firmer or Framing.....dis 60 %

Clothes Wringers.—Crown.....₱ doz $60 00
Novelty..... " 69 00
Universal..... " 69 00
Monitor..... " 69 00

Corn Cutters or Hooks.—Solid Steel....₱ doz $4 00

Corn Knives.—Dunn E'ge T'ol Co.'s Clip..₱ doz $5 75
Disston's..... " 6 00

Crow Bars.—Steel Pointed.....₱ lb 7c

Cutlery.—J. Russell & Co.'s.....
Lamson, Goodnow & Co.'s..... } new list, dis 15 %
Landers, Frary & Clark's.....

Files and Rasps.—
Nicholson's Files.....$5 00 less 5 %
Butcher's Mill.....$6 75
Heller's & Bros. Horse Rasps.....dis 40 %

Forks and Hoes.—
Auburn Mfg. Co.'s Hay and Manure Forks.....dis 20 %
" " Handled Hoes.....dis 30 %
" " Planter Eye Hoes.....add 15 %
Winsted's Planter Eye Hoes.....add 15 %

Hammers.—Yerkes & Plumb.....dis 5 %
Masons' Hammers.....₱ lb 20c
Smith Hand Hammers..... " 28c

Handles.—Axe.....Extra. $2 75 | No. 1. $2 25 | No. 2. $1 75 | No. 3 $1 00
Pick.....Extra. $2 50 | No. 1. $2 00 | No. 1½ $1 75 | No. 2 $1 25
Smith & Montross Fork, Hoe and Rake.....dis 20 %

Harrow Teeth.—1 inch iron.....₱ lb 4½c
⅞ and ¾ inch iron..... " 4¾c
⅝ inch iron..... " c
Barbed or Headed.....½c extra

Hatchets.—Hunt's.....dis 10 %
Simmons'.....dis 15 %

Hay Knives.—Lightning.....₱ doz $20 00
Dunn Edge Tool Co.'s.....₱ doz $14 50—dis 15 %
Fisher's..... " 16 50—dis 10 %

Hinges.—Strap and T—St. Louis make.....dis 25 &

Horse Nails.—Ausable.....22c rate
Northwestern.....22c "
National Patent Pointed.....21c "
" " " Extra Finished.....22c "

Horse Shoes.—R. I. (Perkin's pat.).....₱ keg $6 5
Burden's..... " 6 50
Mule Shoes..... " 7 50
Rhode Island Trotting Shoes..... " 9 00

Locks and Latches.—
Jones & Nimick's.....revised list dis 40 %
Moorhead, Adams & Co.....revised list dis 40 &
Norwalk Lock Co.'s.....revised list dis 40 %

Mattocks and Grub Hoes.—
Klein, Logan & Co.'s Mattock's....₱ doz. $14 75 @ 15 25
" Grub Hoes, Oval Eye....₱ doz. 10 75 @ 12 00

Nails.—Wheeling.....$3 75 rates
Orders for 100 kegs 10c ₱ keg less.

Picks.—Klein, Logan & Co.'s R. R. and Clay ₱ doz.$11 00
Klein, Logan & Co.'s Coal..... " 8 50
" " " Poll..... " 11 00
" " " Stone..... " 14 50
" " " Tamping..... " 17 00

Planes.—Ohio Tool Co.'s.....dis 30 %
Sciota.....dis 40 %

Post Hole Augers.—Clark's Patent—
No. 1, ₱ doz. $27; No. 2, $30; No. 3, $32.....dis 30 %
Barton's Patent.....₱ doz $25—dis 20 %
Vaughn's " .....25—dis 10 %

Sad Irons.—Monitor Brand, Silver Polished..₱ lb 4c

Sash Weights.—Standard Solid Eyes.....₱ lb 3¾c

Saws.—Disston's.....dis 10 %
Hubbard, Lippincott, B. & Co.'s.....dis 10 %
Branch, Crooks & Co.'s.....dis 15 %
Livingston's Patent Buck.....net list

Screws.—American Screw Co.'s revised list....dis 50 %

Scythes.—
Dunn Edge Tool Co.'s.....new list dis 25 %
Paris Furnace Co.'s.....dis 30 %

Scythe Stones.—No. 1 Ind'n Pond ₱ gr's, $7 00
Extra Indian Pond..... " 7 50
Premium..... " 9 50 } dis 25 %
Diamond Grit..... " 13 50

Shovels, Spades and Scoops.—
Ames'.....dis 7½ %
Lippincott's.....dis 20 %
Rowland's Maxwell.....revised list dis 15 %

Sledges.—Smith's Stone or Coal Sledges—
Steel Face Polished.....₱ lb., 15c
Solid Cast Steel..... " 8c

Snaths and Cradles.—Seymour Mfg. Co.'s..dis 25 %

Springs.—Cleveland Spring Co.'s—
Carriage and Express.....dis 10 %
Blue Seat Springs.....new list dis 15 %

Tacks.—Norway Tack Co.'s ½ weight.....dis 72½ %
Brads ½ weight.....dis 50 %

Thimble Skeins.—Pump & Skein Co.'s....dis 55&5 %

Traps.—Newhouse Patent.....dis 15 %

Vises.—Solid Box.....₱ lb 16c
Wilson Mfg. Co.'s.....dis 15 %

Wrenches.—Coes' Genuine.....dis 33½ %
Coes' Pattern.....dis 10 %
Taft's.....dis 60 %

St. Louis Metal Market.

(Corrected Weekly by Messrs. R. Sellew & Co.

Tin Plate.

IC, 10x14, Char	$11 00@11 50	IX, continuous, 20 in. x 200 ft	
IX, 10x14, "	14 50	IC, 10x14, best	
IC, 12x12, "	12 00	Coke	$10 50 @ 11 00
IX, 12x12, "	15 00	IC, 10x14, good Coke	10 00
IC, 14x20, "	17 50	IC, 10x20	11 00
IX, 14x20, "	15 50	IC, 14x20	10 00
IC, 14x20, Terne	$10 25@11 00	IC, 14x20, Coke Lead	9 50
IX, 14x20, "	13 00	IC, 10x14, punch'd for Safes	10 00
IC, 20x28, "	21 50@22 00		
IX, 20x28, "	25 50@26 00		
IC, continuous, 20 in. x 240 ft			

Block Tin.

Large Pigs	28c	Bars	30c
Small "	29c		

Sheet Zinc.

Casks	₱ lb 5¾c	Sheet	₱ lb 10¼c

Solder.

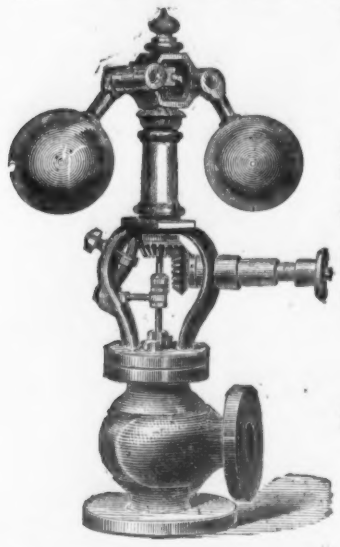
No. 1, Refined, in bars or pigs	$17 00 @ 18 00
No. 2, " " "	16c
Pig Lead	7½c

Sheet Copper.—18 to 100 lbs. Sheets 30x60.....32c
14 to 16 lbs., Sheets 30x60.....32c
10 to 12 lbs., " and 30x72.....35c
6 to 9 lbs., " 38c
Tinned, 14 and 16 oz. 14x48.....31c
Planished, 14 and 16 oz. 14x48.....37c
" No. 7, 8 and 9.....39c
Copper Bottoms.....32c

Sheet Iron.—

	Com'n.	Sm'th.	Char'l.	Jun'ta
No. 16 to 20	4½c	5½c	7½c	9¼c
No. 22 to 24	4½c	5½c	7½c	9¼c
No. 26	4¾c	5¾c	7¾c	9¾c
No. 27	5 c	6 c	7¾c	9¾c

Galvanized Iron.....dis 2[illegible]
Iron Rivets.....dis 25 %
Iron Wire.....dis 35 %
Coppered Market Wire.....dis 30 %
Copper Rivets and Burs.....dis 30 @ 25 %
Russia Iron.—Nos. 9, 10, 11 and 12. ₱ lb.....20c
No. 1 stained, ₱ lb.....18c
Imitation Russia, ₱ lb.....15¢
Retinned Stamped Ware.....dis ??



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We will put our Governor on any Engine, and guarantee it to prove itself superior to all others.

If, after a fair trial, it does not, we will take it off at our own expense.

Shive Governor Co

BETHLEHEM, PA.

ALSO,

SHIVE'S PATENT WATCHMAN'S CLOCK AND DETECTOR.

The Best and Cheapest Watcher of the Watchman made

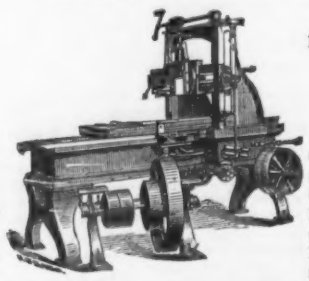
PRICE ONLY $15.

Circulars sent free.

The Pratt & Whitney Co.,

Hartford, Conn.,

Have constantly on hand and making



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Of recently Improved Construction. Pony Trip Hammers, Blacksmiths' Sheaves, Broaching and Stamping Presses, Iron Shop Cranes, Machinists' Tools, Gun and Sewing Machine Machinery. Make to order Gray and Charcoal Iron Castings of all styles and sizes not exceeding 15 tons weight, (making patterns if desired). Furnish Clamp Pulleys of light patterns, cut gears in a superior manner, &c., &c.

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MAKER AND PATENTEE OF

Hydraulic Jacks and Punches,

ROLLER TUBE EXPANDERS

And Direct-Acting Steam Hammers.

Communications by letter will receive prompt attention.

JACKS for Pressing on Car Wheels or CRANK PINS made to order.

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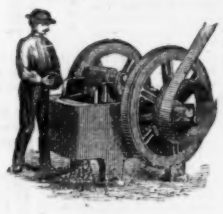
STONE & ORE BREAKER.

New Pattern with Important Improvements & Abundant Strength



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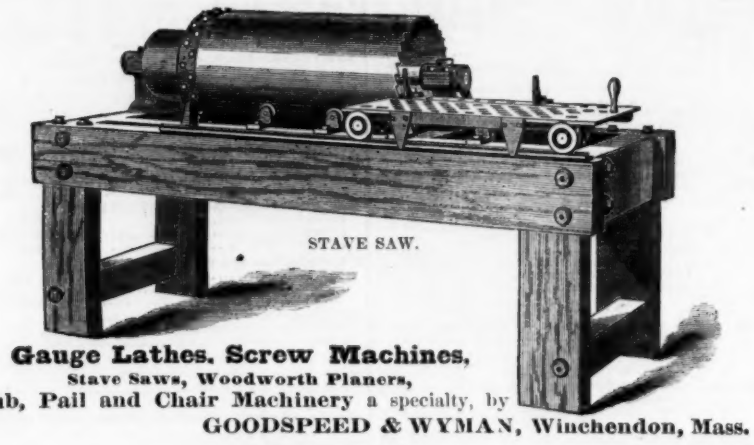

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Gauge Lathes, Screw Machines,
Stave Saws, Woodworth Planers,
Tub, Pail and Chair Machinery a specialty, by
GOODSPEED & WYMAN, Winchendon, Mass.

CORLISS STEAM ENGINE.

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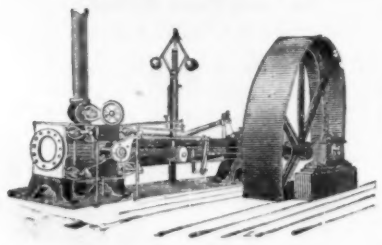

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Engineers, Machinists, Founders,

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Stationary Engines, Shafting, Mill Gearing, Hoisting Machines, Improved Piston Packing and Machinery.

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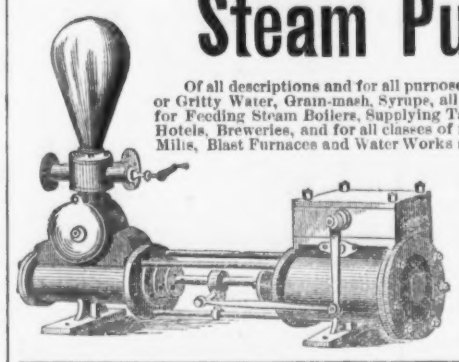
Guild & Garrison's Steam Pump Works,

Nos. 30 to 34 First Street, Williamsburgh, N. Y., Manufacturers of

Steam Pumping Machinery



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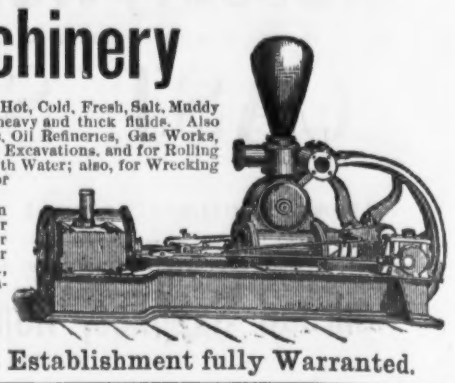
Catalogues mailed on application.



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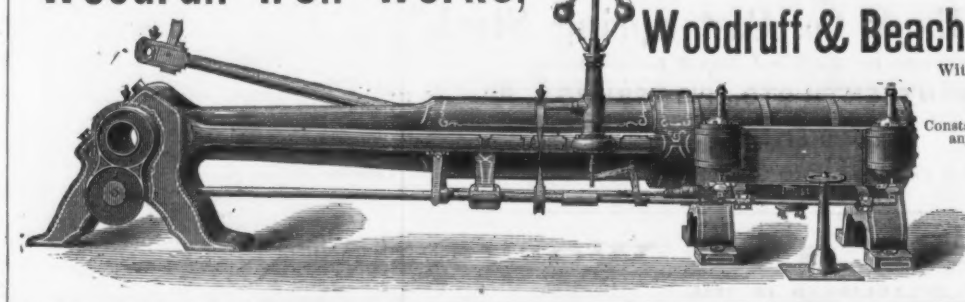

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Steam Boilers

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MILL WORK

And all kinds of Machinery.

CASTINGS

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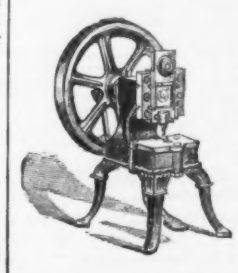

Reduced Price List of The Fowler Power Press.

Number.	00	0	1	1½	2	2½	3	Tinners.	Tinners.	Tinners.	Tinners.	Boiler.
Price, with all improvements...$	100	150	200	250	300	400	500	400	600	800	500	400
Price, without Patent Adjustment...$	85	130	175	220	265	360	450	375	550	750	460	375
Price, without Patent Adjustment or Automatic Stop...$	75	120	165	210	250	345	435	360	460	735	445	360
Size of opening in bed...in.	2x2	2x4	4x7	5x8	6x9	7x10	8x11	12 dia.	20 dia.	26 dia.	14x20	2x2
Price, with all improvements, geared...$	450	600	750		600			850	1,100		700	600

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A Written Guarantee given with our Pumps.

ENTERPRISE HYDRAULIC WORKS,

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Fan Blowers.

Piston Blowers,

"FOULDS" Patent Water Elevator.

Our Fly Wheel STEAM PUMP is admirable For Fire Purposes.

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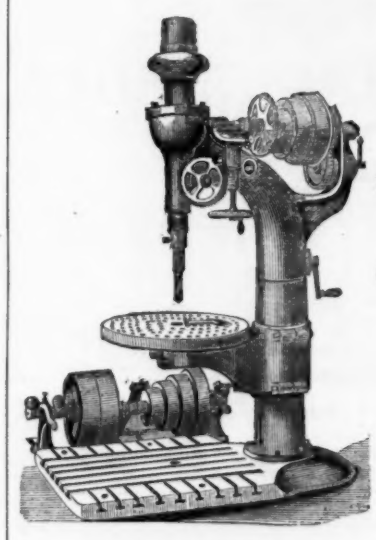

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From twelve (12) to forty-eight (48) inches swing;

Hand Lathes; Wood Turning Lathes; Vertical Drills; Boring Mills; Tapping and Centering Machines; Screw Press for Mandrels; **Grindstone Boxes.**

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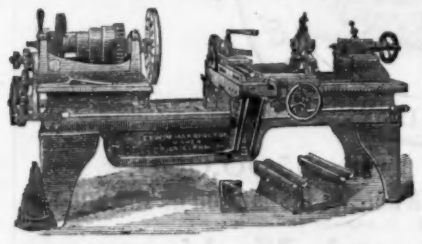

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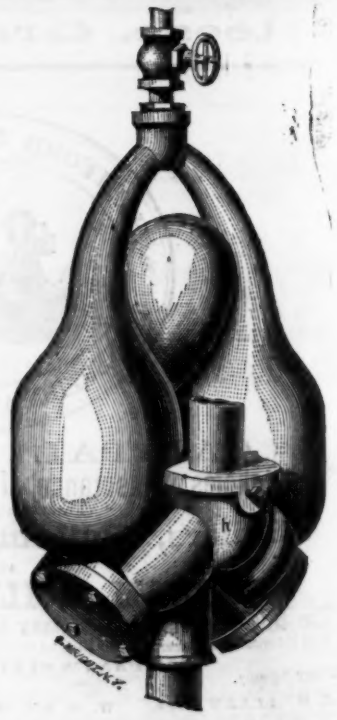

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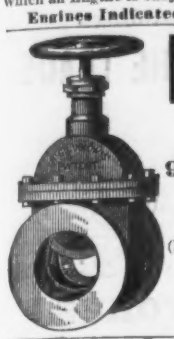

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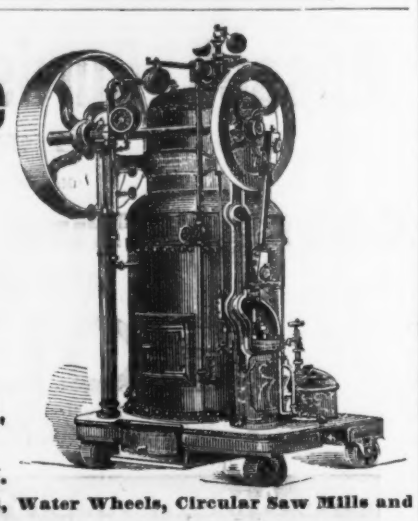

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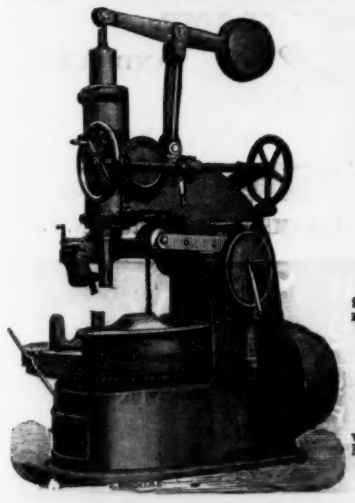

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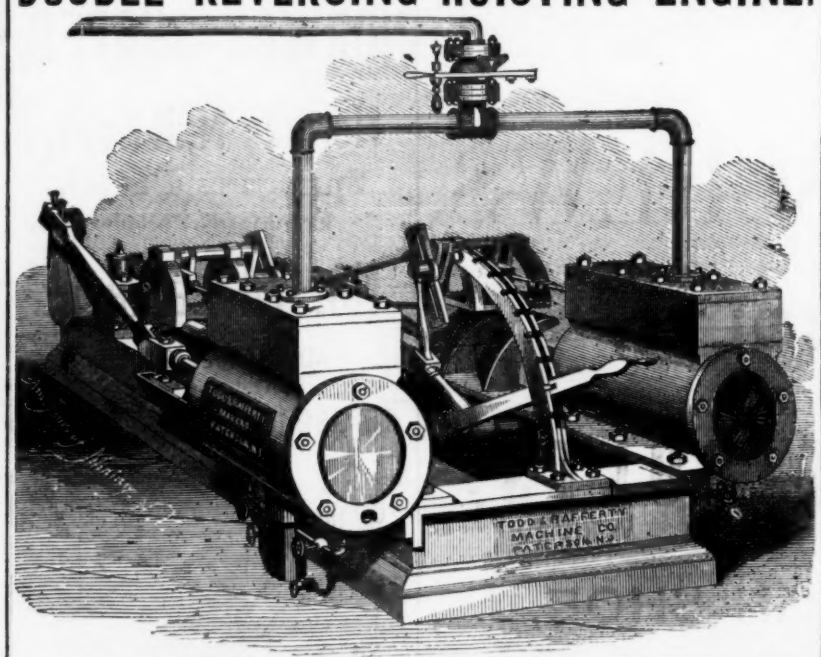

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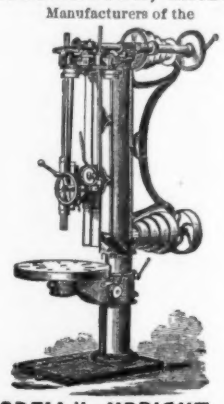

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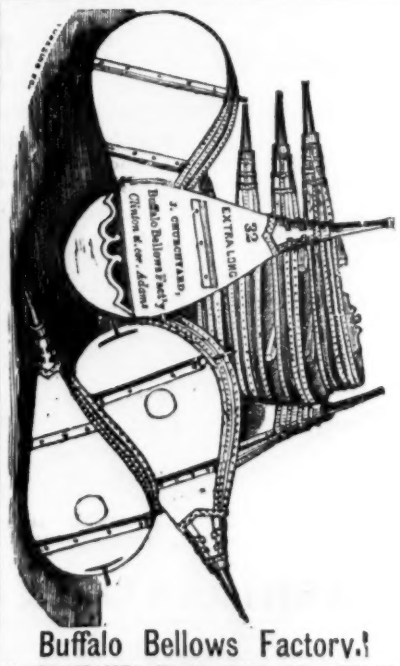

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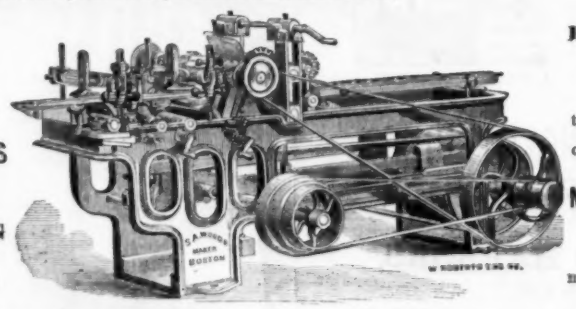

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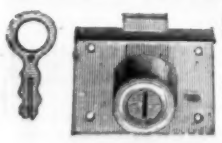

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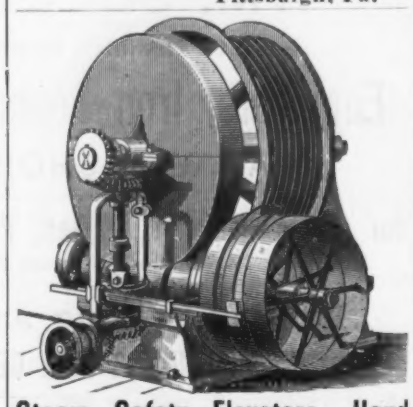

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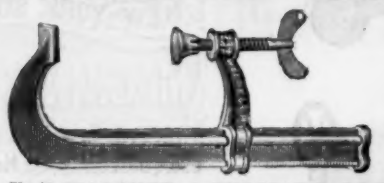

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